



CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31<sup>ST</sup> MARCH 1886

**31<sup>st</sup> Issue.**

PUBLISHED BY ORDER OF  
The Inspector General of Customs.

SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, YOKOHAMA AND HONGKONG  
LONDON P. S. KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S.W.  
1886.

3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Di \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

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I am, etc,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Takow,*  
*Kuikiang, Amoy,*  
*Chinkiang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, 30th June 1886

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Shanghai, pp 11-14,

Report on the Health of Hoihow (Kiungelhow), pp 18-22,

Report on the Health of Pakhoi, p 29, each of these referring to the half-year ended  
31st March 1886

Report on the Health of Newchwang for the two years ended 31st March 1886, pp 1-6

Report on the Health of Chinkiang up to 31st March 1886, pp 7-10

Report on the Health of Canton, pp 15-17,

Report on the Health of Kiukiang, pp 30-34, each of these referring to the year ended  
31st March 1886

Report on the Health of Wuhu from 1st October 1880 to 31st March 1886, pp 23-28

An Appendix of Plates (with brief descriptive letterpress) illustrative of some diseases  
and deformities encountered among Chinese received into foreign hospitals in  
Shanghai, p 35

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX. JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
*PEKING*

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The Contributors to this Volume are —

W MORRISON, M B, CH M	Newchwang
R G WHITE, M R C S, L S A	Chinkiang
R A JAMIESON, M A, M D, M R C S	Shanghai
J F WALES, B A, M D, CH M	Canton
E A ALDRIDGE, L K & Q C P I	Hoihow (Klungchow)
A S DEANE, L K & Q C P, L R C S I	Wuhu
J H LOWRY, L R C P Ed, L R C S Ed	Pakhoi
G R UNDERWOOD, M B, CH M	Kiukiang

For everything enclosed within square brackets [ ], the compiler is responsible

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## DR W MORRISON'S REPORT ON THE HEALTH OF NEWCHWANG

For the Two Years ended 31st March 1886

THE climatic conditions during the first of these years call for no special notice, although during its course epidemics were of rather frequent occurrence

Towards the end of April 1884 three cases of typhus fever occurred within the Roman Catholic Mission establishments in the persons of one priest and two sisters, resulting in one death and two recoveries. At a branch of the same mission 25 miles inland, one death from typhus fever occurred at the same time. It has before been pointed out that the inmates of these establishments, from their life habits and frequent intercourse with the native population, are peculiarly liable to this disease.

With our present imperfect knowledge it seems rather unsatisfactory to attribute the origin of typhus to the Chinese, but I believe that increased facilities for observation will confirm that opinion. The query is sometimes made, How should a district so favourably situated as ours undoubtedly is as to climate be exposed to the visits of typhus? It is well to remember that a moderate temperature is one of the conditions of its existence, while, unfortunately, overcrowding, squalor and destitution are but too common among our Chinese fellow-townsmen. It is not without interest in this connexion that the period in which it generally visits us is the latter part of spring, when sudden changes of temperature and boisterous winds prevail, and the physical energies have been somewhat impaired by the length and severity of the winter.

During winter many of the poor among the Chinese suffer much from want of sufficient nourishment and protection, and a temperature at or below zero is not likely to diminish a natural aversion to soap and water.

In June 1884 a case of typhoid fever occurred within the British Consular building. The sanitary arrangements of this house were certainly not above suspicion. The necessity for periodic inspection of drains, attention to ventilation, and the various methods adopted for removal of excreta cannot be too strongly enforced.

The writer contracted the infection while in attendance on this case. Both diarrhoea and rash were absent.

The pyrexia was moderate during the first week, even appearing to subside, but on the 8th day severe symptoms set in, temperature ascending to 105° Fahr, and these symptoms continued till the crisis on the 13th and 14th days. The two cases resembled each other in these respects. In both instances good recoveries were made.

Cholera appeared in the native town in July On this occasion it was not confined to the Chinese quarter Two foreign residents were attacked, resulting in one death and one recovery

In the case which ended fatally the patient, a male, aged 48, was just recovering from diarrhoea, and was in an exhausted condition Collapse occurred about 9 hours after onset, and death about the 15th hour

In the case which recovered, a male aged about 26, vomiting was relieved by bismuth and hydrocyanic acid, with ice to suck and hot poultices over abdomen

Pills of lead and opium, aromatic chalk and opium, together with hypodermic morphia, and enemata of glyceo-tannin were used to control the diarrhoea

For cramps, friction, compound camphor liniment and brandy were used, and to the extremities, when cold, hot water cloths were applied

About the middle of August 1884 scarlet fever appeared among the children of the Settlement, and cases continued to occur for two months afterwards Altogether there were nine cases, resulting in two deaths and seven recoveries

One fatal case was that of a girl, aged  $6\frac{1}{2}$  years Severe symptoms were early manifested There was partial delirium, great fretfulness, and unwillingness to receive either food or medicine Death occurred on the 8th day of the fever

The other fatal case was that of a boy, aged 3 years On the second day he had a fainting fit, with temperature of  $105^{\circ}$  Fahr

Pulmonary complications hastened the fatal issue, which took place on the 4th day

No troublesome sequelæ have been observed among those who recovered Scarlet fever was reported from Moukden as existing there at the same time among Chinese children

During the year ended March 1886 the health of the community has continued good, and, with the exception of measles and mumps in mild forms, we have enjoyed an immunity from epidemics

In August 1885 rain fell very heavily for two days Much of the surrounding country was flooded, and considerable damage done to the crops This resulted in a scarcity of food during the winter among the native population, especially in the villages adjacent to the port Both foreigners and Chinese manifested their sympathy by contributing to relieve the distressed

During the two years under review 14 births were recorded, and during the same period there were 8 deaths, as follows —

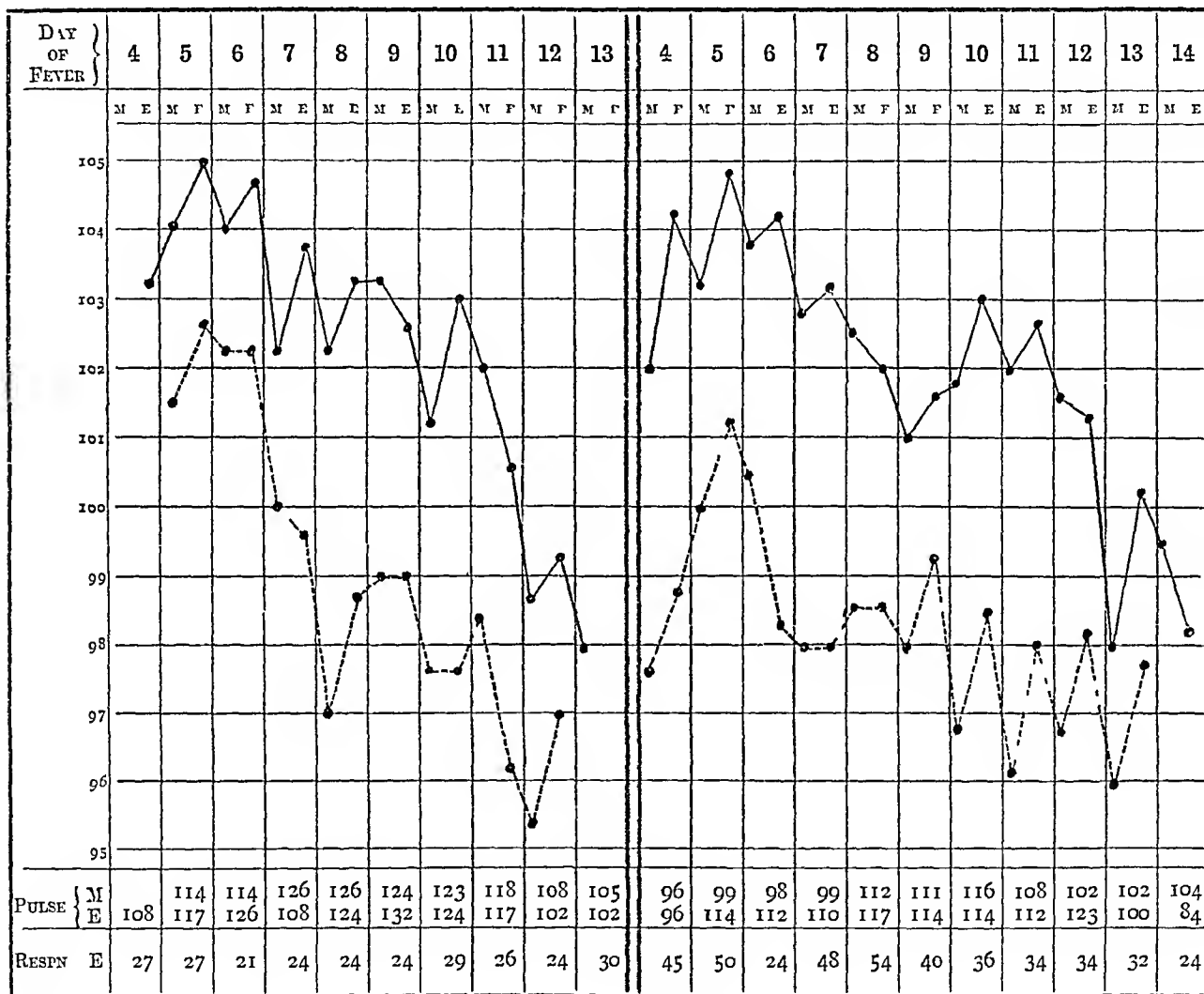
Typhus fever	1
Scarlet fever	2
Puerperal fever	1
Aneurism	1
Cholera	1
Suicide	1
Acute alcoholism	1
TOTAL	<hr/> 8 <hr/>

The last two cases on this list took place on board ship in harbour, and one of the children that fell victims to scarlet fever was only visiting the port

*Cases of Typhus Fever* —The charts annexed will show the general course of these cases 1 and 2 were those of well developed and previously healthy persons These two I judged fit for treatment by cold baths, and while the merits of this method of treatment are being warmly discussed, these data may be of some interest In both the patients enjoyed rather than shrank from the treatment The results were very satisfactory

CASE No 1 MALE, AGED 24

CASE No 2 FEMALE, AGED 29



Number of baths daily, 3, average duration, 13 minutes, average temperature, 60° Fahr

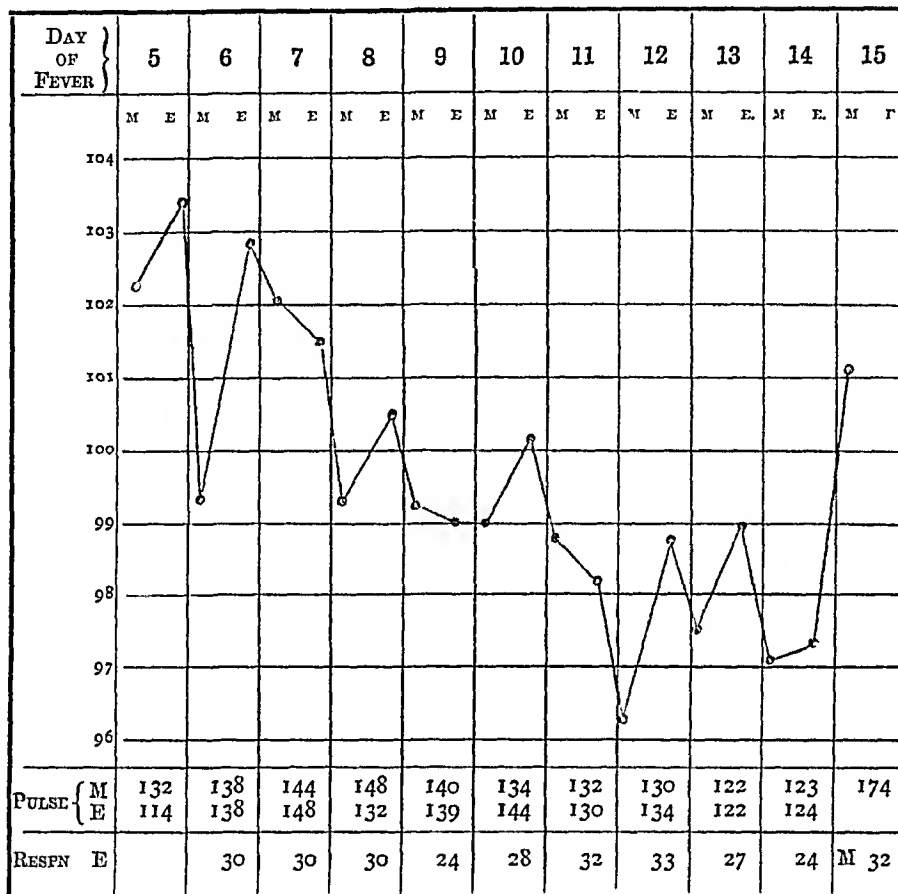
Number of baths daily, 3, average duration, 10 minutes, average temperature, 60° Fahr

The dotted line in these two charts represents the remissions of temperature procured at the hour when the bath was administered, which, it will be observed, varied considerably, although duration and temperature were the same

Case 3 occurred in a person of feeble constitution It was from the first eminently adynamic, and as temperature was not a prominent factor, treatment by cold baths was not adopted Sore throat of

an aggravated nature—a somewhat unusual complication in typhus—tended to hasten death, which took place on the 15th day

CASE No 3 FEMALE, AGED 34



*Aneurism of Ascending Aorta, Rupture into Pulmonary Artery, Death*—A B, aged about 40, had been enjoying good health, only once, cursorily—about 18 months previous to his death,—expressed a suspicion of having heart disease

During winter complained one evening of uneasiness and oppression over the chest, and lay down to rest. Death took place within half an hour after first experience of uneasiness, and before medical aid could be given

*Notes of Autopsy*—Body well nourished, abundant subcutaneous adipose tissue, right pleural cavity contained several ounces of reddish serum, volume of right lung abnormally large, hypostatic congestion present, abundance of frothy serum in air cells, crepitation rather less than normal, left lung small, contracted, and adherent to chest wall—removed with difficulty,—dense, apparently from compression, heart encumbered with fat and much enlarged by hypertrophy and dilatation. Sacculated aneurism found springing from right side of ascending aorta, and communicating by a small aperture—admitting a probe—with a sinus of Valsalva of the pulmonary artery. Aneurism contained old laminated clot, laminae arranged in concentric layers, aneurism firmly adherent by anterior surface to the pericardium. The trachea contained a large quantity of frothy serum

*Artillery Accident, Discharge of Gun while re-loading*—SOON YUEN, Chinese artilleryman, aged 26, was engaged at gun practice. A charge went off while he was in the act of re-loading gun, owing to imperfect sponging out.

The stooping attitude of the soldier—grasping the ramrod with both hands—would account for the nature of the wounds. The three external fingers of left hand were shattered, and there were one or two wounds on ulnar aspect of left fore-arm.

The muscular mass, consisting mainly of flexors of right fore-arm, was blown away. The face—between orifices of nostrils and supra-orbital ridges—was much mangled, so much so that the exact position occupied by the eyes could not be recognised. Face, neck, and arms were scorched and blackened, and fragments of wooden ramrod were impacted in wounds on face. The disfigurement was great and the outlook anything but hopeful, but as the officer in charge was anxious to give the wounded soldier the benefit of what surgical treatment could do for him, I decided to undertake the case.

The hut where the patient lay was 2 miles distant from my house. Through a maze of intricate streets and roads I had to return in the dark for instruments and assistance. The necessary appliances having been procured, and two friends having kindly consented to assist, we returned together to the hut. A door was unhinged and fitted up as an operating table, and various native dishes were appropriated for sponges, instruments, etc. At midnight, by the light of one foreign lamp and several candles, work was begun.

The right fore-arm was amputated about 2 inches below the elbow-joint. Influenced partly by the officer's request, I attempted to save the thumb and fore-finger of left hand by an oblique amputation carried upwards and outwards through the three external metacarpals. Four days afterwards this hand became gangrenous, and I was obliged to amputate through middle of left upper-arm.

I was successful in saving one eye only, the other was lost chiefly on account of the lacerated condition of the eyelids and adjacent tissues. A subsequent erysipelatous attack in left fore arm tended to retard recovery, which took place about three weeks after the second operation.

Previous temperate habits and a cheerful disposition aided much in sustaining the vital powers under the great strain to which they were exposed.

*Foreign Body in Bladder, Lithotomy, Recovery*—CHAN KWAI, Chinese merchant, aged 26, was seen by me first in December 1883. He had been complaining for 18 months previously of symptoms resembling those of gravel, together with emissions. He had received treatment, with temporary relief, from various Chinese doctors, first by medicines and latterly by leaden bougies. The first bougie inserted remained five days in the urethra and came out of itself, the next used had passed into the bladder, where it had remained then about four months.

His symptoms were difficult micturition, pain at root of penis, with pus and occasionally blood in urine.

I passed a sound and could feel the bougie loose in the bladder. I offered to operate, but patient at first wanted a guarantee that he would recover, and ultimately promised to return after the weather became mild. I saw him next in June 1884, and ascertained that he had, by advertisement, been offering a large reward to any native doctor who would afford him relief. No one appeared to claim the reward. I then arranged to perform an operation.

On 29th September the operation of median lithotomy was performed, and the bougie, encrusted with urinary salts, was extracted. Withdrawing and re-insertion of drainage tube on 1st October, owing to a temporary obstruction, led to oozing from wound and hæmorrhage into bladder. An injection of a solution of perchloride of iron procured expulsion of blood clots, and arrested hæmorrhage. At 7 P.M. on same day patient passed urine by the urethra. On 9th October patient ceased to pass urine through the wound, and henceforth urine was passed only through the urethra.



## DR R G WHITE'S REPORT ON THE HEALTH OF CHINKIANG

Up to 31st March 1886

DURING the last six months there has been no serious illness among the residents, chronic cases excepted, such as phthisis, etc. In the autumn, on the steamers visiting the port there were several cases of cholera, the disease, however, was not contracted here. Of these cases there was one fatal while in port—a native of Swatow, aged, I presume, about 40 years, when I saw him he was moribund.

A party of missionaries visited the port *en route* for Shanghai, Soochow, etc., by Grand Canal. They arrived on a Saturday and remained over Sunday outside the south gate in their boats, moored close to the mouth of a small canal opening from the city. On the Sunday morning the son of one of the missionaries, a lad of 8 or 9 years of age, complained of being ill. Nothing serious was apprehended until evening, when a medical lady missionary was summoned, but the lad died at 11 P.M. The child was just dead when the father was seized. I was summoned next morning at about 7.30. He was much exhausted with pain accompanied by cramps. Evacuations—the usual type—were passed involuntarily, the body was bathed in sweat, and the surface cold, pulse hardly perceptible. The patient was just conscious, and stimulants administered internally, with the application of heat and friction externally, only gave just perceptible improvement for a few minutes. A hypodermic of morphia relieved the cramps, but in spite of all efforts, at about noon death supervened.

The water of the canal had been used for cooking and drinking, but with the precaution of boiling and filtering, as I am informed. I made all inquiries as to the existence of the disease among the natives, but this autumn there have been few, if any, cases in the port, except those which came from other places. This was quite a contrast to the autumn of 1884, when cholera was very common not only here but in the country all round, many cases occurred also in the camp close by. If one takes into account the ponds of stagnant water in which the vegetables and rice consumed by the soldiers and people are washed, the wonder is that a single man, woman or child survives. At Yangchow in the autumn of 1884 the epidemic was very bad. I remember a native in answer to my inquiries as to the mortality said that "coffins could not be bought."

Since the close of the war great numbers of soldiers passed up the river. Among these there was much disease, and besides diarrhoea and dysentery there was, so far as I could learn, a large amount of cholera. One steamer was delayed here to send seven bodies ashore, making that number of deaths between Amoy and Chinkiang, and, if I may judge from a few steamers which I visited, the way the men were usually crowded together explains why the epidemic spread once it was introduced. In the hot weather the soldiers suffered very much. On some of the non transports they were cooped up between decks like so many herrings. I visited one ship on board which there had been several cases of heat apoplexy. When in



the river it was impossible to keep the men below, so the deck and every possible spot were covered with soldiers to such an extent as not to leave walking room and to even cause apprehension lest from the great weight on deck the ship might capsize. Had any accident occurred of a serious nature, the loss of life would have been enormous.

During the period since my last Report was written, besides the usual cases of fever, diarrhoea, dysentery (which were not many or severe) and minor ailments, there were among foreigners two cases of small-pox.

One was of a very mild form, the other was confluent, and all through was most severe. The fatal termination occurred on the morning of the 6th day.

A case of typhus of severe nature ended well, and made a good recovery.

An unfortunate accident occurred with a charge of heavy shot which penetrated the ankle-joint and severely injured the vessels, nerves and soft parts, so as to render amputation necessary. The patient was conveyed to Shanghai and operated on by Dr JAMESON at the General Hospital, in my absence. It was only by careful dissection and patching that sufficient skin was obtained below the knee to render operation possible at the seat of election. An excellent stump, however, resulted, and with an artificial leg the patient walks with ease.

A case of pistol-shot wound occurred in which death must have been instantaneous.

A Customs officer was exposed to the sun in the morning. At about 3 P.M. he felt ill and sent for me. I was absent, attending a case in the city, until 5 P.M., when I found the officer in question in a state of coma, snoring loudly, and not to be roused. After half an hour's work, pouring iced water over his head, he recovered enough to complain of the treatment in very strong terms, and soon after he was able to swallow 10 grains of quinine. In two hours' time he had quite recovered his senses. Ice was kept on all night, and quinine repeated. By next morning, with the exception of headache and a certain amount of weakness natural from so severe a shock, the patient was doing well, headache continued for some days, and eventually a change to Japan was the means of removing this distressing symptom.

A case of sprained ankle occurred of an unusually severe nature. There was certainly no bone fractured, the leg was swollen up to the knee-joint and there was intense ecchymosis all over. The accident occurred by a slip and fall on a clay road. It was two months before the patient could walk, and even then but slowly. Eventually there has been complete recovery.

A serious case of croup was cut short by free use of a 10 grain solution of nitrate of silver to the fauces, and by administering an emetic the effect was almost instantaneous.

A far advanced case of phthisis was sent to Takow (Formosa), and reports concerning it are favourable. This is the second case sent down from here, and there is no doubt that the climate has been most beneficial to both.

In the autumn of 1883 diphtheria was prevalent among the natives, and in many cases was fatal. One case in the community proved also fatal—a Eurasian lad dying from it.

In 1884 a mechanic from Shanghai died from a combination of heat and too great a quantity of liquor of many kinds (brandy, gin, etc.) and of inferior quality. The man was already run down from chronic alcoholism, abdominal viscera inflamed and intensely engorged, liver about twice its normal size.

A troublesome case of chronic rheumatism was for the time being cured by a change to Japan. Iritis was one of the most troublesome points in the case. There already existed a posterior synechia to a small extent from a previous attack, but the constant use of atropine prevented any further adhesions.

One death occurred in the community in 1885,—a child, about 2 years old, from bronchitis.

During a period of heavy rain an officer from the Customs paid his usual visit to the lights on the river. On his return he complained of being unwell, his temperature ran up, the morning reading

being almost the same as the evening. On the 4th day the temperature was  $105^{\circ} 2$  Fahr, after this it rapidly fell, and in two days was normal. During the period of fever there was great prostration, a dusky flush on the face, stasis in ears and dependent parts, patient wandering in his mind, in fact, the case appeared like typhus, but, as already stated, the temperature returned to normal, and there was speedy recovery.

Among the natives it is very gratifying to notice the large numbers who are adopting vaccination. One may see notices posted in various places informing the public where they can have their children vaccinated. At the same time many who should know better still adhere to old custom. A month ago I saw the child of the club boy here with plugs in her nose. I asked the reason, and found she had that morning been inoculated. I need not add her residence on the club premises was of short duration. The boy was much surprised when I visited him soundly, and assured him that if he did not mind risks for his child he must not put us in a position to run the same. He has been years with foreigners.

Again and again I hear of deaths of women in childbirth.

In a case of rupture of the uterus I was sent for just after the mishap. The mother was almost dead, and the friends would not allow me to do anything.

A few days ago some poor people came to me with a history of a girl 19 years old having been eight days in labour. They wanted medicine. I agreed to go and see the case if they would assure me the friends would allow me to attend to it. On my arrival at the door of the hut where the patient was, I was received by several females, who were profuse in their thanks, but they would not admit me. In about six hours after the woman died.

I was called one morning early and asked for medicine for a woman in labour and half delivered of a snake. I was told the head of the reptile was born, and more would come. Feelings between those of curiosity and charity prompted me to offer to visit the case. I was received with evident satisfaction by all the neighbours, who did not like the idea of the new production. In the reed hut to which I was conducted I saw my patient, a miserable woman, about 40 years of age, anæmic to a degree and in extreme pain. There was a profuse discharge of a most offensive fluid, and I found a large polypus had come down and was held at the orifice of the vagina, thus no doubt causing painful traction on the uterus. The woman was too weak to admit of removing the tumour then, so, having cleansed it and oiled it, I replaced it in the vagina, the pain during even this simple operation causing the woman to faint. On coming to she expressed intense relief. She said she would come to have the tumour removed, but has not since been seen.

Some six years ago I operated on a case of vesico-vaginal fistula, due to protracted labour, and violence on the part of the midwife in the delivery of a dead child. The fistula extended from the urethra backwards and upwards so as practically to make the vagina and bladder one cavity. The woman was in a miserable condition of health, the genitals and thighs were excoriated, and the smell was so bad that few people would remain in the room with her. She was instructed to accustom herself to lying on her face. At the first operation only a short portion of the edges could be drawn together, there had been such loss of tissue. A flexible catheter was introduced through the urethra and retained for two days. The woman did not get up for six days, when the sutures were removed, and union for a good inch had taken place. I operated five times, each time after union of the edges the parts became more relaxed. I believe there is still a minute orifice above, but the woman was so pleased with the success of the operations that she insisted on returning home, promising to return, but I have not seen her since. As a proof of the success of the operation so far as it went, some two years after last closure she sent me a present of several red eggs, an intimation that she had been confined, and, so far as I could learn, the freshly united tissue between the vagina and bladder was not damaged during this second parturition.

A woman came one day with a child of about 11 years of age, saying that it had some three months before swallowed an ordinary sized Chinese cash. No inconvenience had been experienced until lately, when the cash could be felt through the abdominal wall. On examination I could distinctly feel an object answering to the above description situated a little below the costal cartilage, about an inch to the right of the median line, almost subcutaneous. There was some tenderness on pressure, and the child complained that at times during respiration there was slight pain. How the cash reached this situation is the question. I advised the woman to let the child come as an in-door patient, but, unfortunately, notwithstanding all the assurances she gave that she would bring her, I have not seen her since.

Appended is a chart of the temperature, etc, for the last six months. I am indebted to Mr Harbour Master POYNTER for supplying me with these particulars. The weather of the last six months has been exceptionally fine.

METEOROLOGICAL TABLE

MONTH	THERMOMETER (FAHR)				BAROMETER		RAIN	
	Highest.	Lowest	Average Highest.	Average Lowest.	Highest.	Lowest	Fall	No of Days.
1885	°	°	°	°	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	
October	90	51	75	60	30 30	29 80	3 98	3
November	71	31	59	41	30 72	30 00		
December	66	30	50	36	30 70	29 83	2 47	5
1886								
January	53	20	45	31	30 65	29 95	0 24	1
February	57	20	39	32	30 75	30 14		
March	71	33	50	44	30 54	29 80	2 76	10

# DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 31st March 1886

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the Six Months ended 31st March 1886 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  $8^{\text{h}} 5^{\text{m}} 45^{\text{s}}$  \*

DATE	Barometer at 32° F	THERMOMETER.		Amount of Vapour in the Air per Cubic Foot	Hu- midity, 0-100	Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	REMARKS
		Diurnal Mean Tempera- ture in Shade	Extreme Tempera- ture in Shade								
1885	Inch	° F	° F				Miles		Inch	Inch	
Oct	Max	30 296 (17)	71 8 (3)	01528	98 (5)	11 (6)	11 9	N 62° E	3 760	1 268	Six rainy days Thunder storms on 5th and 25th
	Mean	30 086	64.2		76	7					
	Min	29 738 (5)	54.8 (23)		65 (25)	4 (27)					
	Range	0 558	17 0								
Nov	Max	30 655 (12)	65 7 (9)	00852	98 (16)	12 (11)	13 8	N 43° W	3 332	0 733	Five rainy days First snow on the 11th
	Mean	30 285	50 0		70	7					
	Min	29 887 (1)	38 3 (12)		44 (27)	3 (21)					
	Range	0 768	27 4								
Dec	Max	30 663 (30)	57 0 (2)	00709	98 (22)	16 (22)	13 6	N 27° W	2 085	2 060	Nine rainy days No snow during the month
	Mean	30 269	44.0		74	9					
	Min	29 820 (23)	32 5 (17)		44 (17)	5 (4)					
	Range	0 843	24.5								
1886											
Jan	Max	30 602 (12)	46 2 (7,9)	00548	95 (22)	12 (22)	12 8	N 18° W	2 383	1 229	Seven rainy days Snow on the 14th, 22nd, 26th and 30th On the 9th great magnetic disturbance
	Mean	30 308	37 5		72	8					
	Min	29 982 (20)	25 0 (31)		44 (31)	4 (15)					
	Range	0 620	21 2								
Feb	Max	30 674 (19)	45 9 (25)	00469	92 (5)	16 (5)	13 3	N 8° W	1 606	1 733	Ten rainy days Snow on the 6th, 19th, 20th, 26th and 27th
	Mean	30 368	35 5		68	9					
	Min	29 970 (5)	26 4 (1)		52 (17)	7 (14)					
	Range	0 704	19 5								
March	Max	30 510 (10)	55 4 (18)	00882	98 (15)	18 (15)	13 7	N 70° E	2 174	2 966	Thirteen rainy days First thunderstorm on the 17th Magnetic disturbance on the 30th and 31st
	Mean	30 154	47 4		82	12					
	Min	29 813 (23)	39 2 (10)		53 (29)	7 (27)					
	Range	0 697	16 2								

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich

NOTE —The figures in parentheses indicate the days on which the observations to which they are appended were made Under the headings "Diurnal Mean Temperature in Shade," "Humidity," and "Ozone" they indicate the days on which the mean readings were respectively highest and lowest

The Rev MARC DECHEVRENS has, as usual, been good enough to condense the foregoing abstract from his records. There is little in it requiring special remark, except the comparatively large amount of snowfall. The highest temperature ( $81^{\circ} 7$  F) was registered on the 9th October, the lowest ( $18^{\circ} 1$  F), on the 2nd February. Winter began early, as is shown by the occurrence of a fall of snow on the 11th November. In the Settlements  $11^{\circ}$  F was registered on one morning (1st February), the minimum never rising to  $32^{\circ}$  F between the 25th January and the 5th February. The 24th March was the last night of frost.

The prevailing type of disease up to the end of November was abdominal, ranging from acute dyspepsia to malarious dysentery. Many of the cases of remittent fever which occurred in my practice were of typhoid character, and it is to be observed that flank intermittent fever is yearly becoming less common, its place being taken by the remittent form. During the latter part of the half-year rheumatic affections and catarrh of the bowels and respiratory passages were, as might be expected, more prevalent. Varicella attacked a large number of foreign children in January and February. Two adults came under my care with this disease, infection from children resident in the same house being beyond doubt. The "varicella" of adults is not always variola, as HEBRA would have us believe.

One case of small-pox in a Eurasian girl came under treatment in March, and terminated favourably.

A few cases of whooping-cough occurred in March, but up to the end of the period under review I saw no measles. It broke out, however, in April.

There were 12 fatal cases of cholera, all but one being non-resident. The last death occurred on the 28th October. Setting aside a few instances of violent diarrhoea and vomiting, obviously due to some error in diet or exposure, I saw but one case that I should be justified in classing as cholera. This recovered.

Without offering any explanation of the fact, it is worthy of notice that during the first half of January, the weather being dry and cold, there was a remarkable prevalence of high temperatures in cases of trivial illness, without any corresponding disturbance of the general health. I have before me a list of cases observed during this period, comprising chronic bronchitis, simple diarrhoea, presence of lumbricoid worms, amenorrhoea, conjunctivitis, ozæna, and many others equally unconnected one with another, in which there was at some period of every day a temperature of at least  $101^{\circ}$  F. Routine use of the thermometer could alone reveal this condition, for there was in none of the instances referred to any symptom that would have caused it to be suspected.

In January and February the mortality among natives from cold was unusually high.

Cattle disease spread widely and rapidly among the daries during the first quarter of this year.

The following table is compiled from the municipal registers and the sexton's books —

BURIAL RETURN of FOREIGNERS for the Half-year ended 31st March 1886\*

CAUSE OF DEATH	OCTOBER.	NOVEMBER	DECEMBER.	JANUARY	FEBRUARY	MARCH	TOTAL.
Typhus fever			1†				1
Enteric fever	1 2‡						3
Varicella						1	1
Measles				f 1†§			1
Exanthematic fever						1	1
Remittent fever	1†§						1
Cholera	1 11‡						12
Tuberculosis		1‡			1	1†	3
Hydrophobia				1§			1
Septicæmia					f 1		1
Alcoholism						1 f 1	2
Cerebral congestion				1†			1
Bulbar paralysis	1						1
Phthisis					1 1‡ 1†		3
Pneumonia				1			1
Bronchitis						1	1
Capillary bronchitis				f 1§			1
Chronic diarrhœa		f 1					1
Dysentery			1				1
"Stomach disorder"						f 1§	1
Hepatic abscess, pyæmic			1				1
Hepatic cirrhosis			1				1
Peritonitis				1			1
Disseminated colloid of peritoneum		f 1†					1
Sarcoma of neck				1			1
Carcinoma of pancreas						1	1
Glioma of cerebellum			f 1				1
Drowned	1‡		1‡				2
Buried on Coroner's order	f 1						1
" " Consular certificate			f 1§ 1		1		1
" " without certificate							2
TOTAL	19	3	8	7	6	8	51

\* Not including deaths (if any) among the Catholic religious bodies, among Eurasians and Japanese. Exclusive also of still births, and of burials after death occurring elsewhere.

† Macro parentage (7)

§ Infant (6)

‡ Non resident (17)

|| Manila (4)

No European died of any disease affecting the heart or great vessels. There was no case of suicide. No fatal case of enteric fever occurred in any month but October.

Subtracting from the total of 51 deaths, 2 cases of drowning, there remain 49 deaths attributable to disease. Infant mortality is represented by 6. The foreign adult mortality was therefore 43 (36 males and 7 females), against 28 (25 males and 3 females) during the corresponding period of 1884-85.

CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS

Varicella	1	Alcoholism	2 (1 female)
Exanthematic fever	1	Bulbar paralysis	1
Enteric fever	1	Phthisis	1
Cholera	1	Pneumonia	1
Tuberculosis	1	Chronic diarrhœa	1 (female)
Septicæmia	1 (female)	Dysentery	1

Hepatic abscess	1	Cancer of pancreas	1
Hepatic cirrhosis	1	Glioma of cerebellum	1 (female)
Peritonitis	1	Uncertified	1 ( " )

14 males and 5 females, against 19 males and 3 females for the last previous corresponding period

#### CAUSES of DEATH from DISEASE among the CHILDREN of RESIDENT EUROPEANS

Hydrophobia	1	"Stomach disorder"	1 (female)
Capillary bronchitis	1 (female)	Uncertified	1 ( " )

1 male and 3 females, the numbers for the winter six months of 1884-85 having been 1 male and 2 females

#### CAUSES of DEATH from DISEASE among NON-RESIDENT EUROPEAN ADULTS

Enteric fever	2	Tuberculosis	1
Cholera	11	Phthisis	1

15 males, as against 3 males during the corresponding period of 1884-85

#### CAUSES of DEATH from DISEASE among RESIDENT NON-EUROPEAN ADULT FOREIGNERS

Typhus fever	1 (Macao)	Colloid of peritoneum	1 (Macao, female)
Tuberculosis	1 ( " )	Bronchitis	1 (Manila)
Cerebral congestion	1 ( " )	Sarcoma of neck	1 ( " )
Phthisis	1 ( " )	Uncertified	2 ( " )

7 males and 2 females, against 3 males in the last corresponding period

#### CAUSES of DEATH from DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Remittent fever	1	Measles	1 (female)
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both of Macao parentage The number for the preceding corresponding period was 3, all Malays and females

The subjoined extract from the *procès-verbal* of the meeting of the French Municipal Council held on the 16th May 1886 shows that that body has taken the initiative in attempting to remedy the dangerous condition of affairs to which attention was drawn in the last number of these Reports \*

*Permis d'Inhumation* —L'attention du Conseil ayant été appelée sur ce qu'il pouvait arriver que des permis d'inhumation fussent demandés sur la production d'un certificat de décès signé par des personnes non qualifiées à cet effet, le Conseil prie son Président de s'entendre avec son collègue du *Municipal Council* afin de prendre telle mesure qu'il conviendra pour parer à cet abus, et de vouloir bien lui faire connaître le résultat de cette démarche —*L'Écho de Shanghai*, 21 mai 1886

\* *Customs Medical Reports*, xxx, 16

# DR J F WALES'S REPORT ON THE HEALTH OF CANTON

For the Year ended 31st March 1886

THE general health of foreigners residing here during the above period has been fairly good, although cases of bowel disorders, more especially diarrhœa, have been somewhat in excess of the average of previous years

There have been five births and three deaths, of the latter, one was of an adult from general spinal paralysis

The patient had contracted syphilis 20 years previously, for which he had never received any specific treatment From time to time he suffered much from inflammatory swellings on his head and limbs The paralysis was preceded by an attack of dysenteric diarrhœa On 16th December 1884 he complained of partial loss of sensation of right leg, and within two days this was succeeded by partial paralysis of motion of left arm During the following five days paralysis of motion had extended to the remaining limbs, and the bladder had become ataxic His chief suffering throughout his illness was caused by frequent and painful spasms of right arm and leg, notwithstanding that the cutaneous sensibility was most imperfect in these limbs On 13th February 1885 the paralysis had extended to the diaphragm, and his voice had become much weakened On 20th of same month he complained of altered sensation or numbness having extended to the left ear, and the difficulty of breathing had become extreme Death took place on 21st April 1885, and was doubtless hastened by the presence of several large bed-sores, the formation and extension of which it was found impossible to prevent There were no cerebral symptoms Iodide of potassium was administered in scruple doses thrice daily, but afterwards iodide of sodium was substituted, owing to gastric irritability Mercurialunctions were also practised

Of the two remaining deaths, one resulted from choleraic diarrhœa, and the other from dysentery, and both occurred in infants who were hand-fed At times it is impossible here to procure a good wet nurse I have known even missionary families to experience this difficulty, although they are intimately acquainted with the natives and their language

During the year I attended eight cases of continued fever, three of which were associated with typhoid symptoms The following record is that of a patient who possibly contracted the disease in Japan, whence he had returned three weeks prior to the beginning of his illness I had not an opportunity of recording the morning and evening temperature during the first six days

He began to feel unwell on the evening of 23rd December 1885, from which date I reckon the attack began He continued, however, to walk about and attend to duty, feeling very unwell till 28th December, when he took to his bed The bowel symptoms were well marked, the motions were yellowish, liquid and offensive, there was gurgling on pressure, and at first notable tenderness in right iliac fossa The diarrhœa continued four days after the evening temperature had become normal The temperature observations were taken each morning and evening at 9 30 A M and 7 30 P M

	DECEMBER 1885			JANUARY 1886													
	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Temperature {	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F
	M 100.6	101.2	101.4	100	98.7	99.2	98.8	97.6	97.8	97.7	98	97	98.4	99.6	98.6	98	97.2
E	103	102.8	102	100.8	100.4	100.3	99.8	100.4	100	100	99.6	100.4	99.8	99.2	99	99.2	98.4
No of Motions	2	2	2	1	1		2	1	1	1	1	2	2	3	3	3	3



I have lately satisfactorily tested the effectiveness of cocaine as a local anæsthetic

Having circumcised a patient for congenital phimosis, he assured me that he felt no pain or discomfort whatever. Five minutes before operating I injected a few minims of a 10 per cent solution subcutaneously, and also painted the part with the same.

Recently I had an opportunity of reducing by manipulation a subcoracoid dislocation of the humerus.

The patient was a very muscular and powerfully built subject, who had fallen a distance of 14 feet on his elbow six days before I saw him. Repeated efforts had been made to replace the bone by violent extension with the heel in the axilla, but without effect. I had him put thoroughly under the influence of chloroform, and by simply first adducting and then rotating the arm outwards, the head of the bone was replaced with the greatest possible ease.

The following abstract from the meteorological tables for last year has been prepared by Mr Harbour Master MOOREHEAD —

# ABSTRACT of CANTON CUSTOMS METEOROLOGICAL TABLES, April 1885 to March 1886

MONTH	WINDS							WEATHER			BAROMETER				THERMOMETER			
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	No of Days Fog	No of Days Rain	Rainfall in Inches	DAY		NIGHT		DAY		NIGHT	
											Highest Reading and Average Highest	and Average Lowest	and Average Highest	and Average Lowest	and Average Highest	and Average Lowest	and Average Highest	and Average Lowest
1885							miles				Inches	Inches	Inches	Inches	°	°	°	°
April	4	16	2		7	1	4.1	15	11½	{ 30 12 29 98	29 79 29 90	30 07 29 97	29 78 29 92	85 77	63 72	77 73	62 69	
May		20	3		8		4.9	13	6½	{ 30 08 29 94	29 60 29 82	30 05 29 92	29 69 29 91	89 84	73 79	88 80	72 77	
June	1	17	1		11		4.2	11	15	{ 30 00 29 86	29 65 29 79	29 98 29 85	29 66 29 80	91 85	75 81	88 82	75 79	
July		17	3	2	9		1.2	10	9½	{ 30 03 29 81	29 60 29 71	30 00 29 75	29 65 29 72	91 87	78 82	90 83	78 80	
August		18	4	2	7		1.9	14	16½	{ 29 92 29 80	29 53 29 70	29 89 29 78	29 56 29 73	91 86	79 82	89 82	77 79	
September	4	11		2	13		0.6	6	4½	{ 30 13 29 94	29 70 29 88	30 10 29 91	29 72 29 89	90 86	77 79	85 81	74 79	
October	11	6			14	1	1.7	1	2½	{ 30 18 30 06	29 90 30 01	30 11 30 05	29 95 30 03	88 80	67 74	83 76	65 73	
November	21	1			8		1.2	3	1	{ 30 41 30 22	29 90 30 13	30 39 30 20	29 94 30 14	82 70	55 65	77 67	53 62	
December	18	9			4		1.3	2	2½	{ 30 35 30 18	29 88 30 08	30 30 30 15	29 90 30 11	78 65	53 63	73 65	51 60	
1886																		
January	23	6			2		4.9	4	2½	{ 30 35 30 18	29 80 30 10	30 35 30 16	29 83 30 10	76 63	42 56	68 59	42 56	
February	25	1			2		5.1	3	1½	{ 30 30 30 18	29 90 30 10	30 28 30 16	29 90 30 08	62 54	44 50	60 52	44 48	
March	8	17		1	5		4.1	9	4½	{ 30 20 30 07	29 80 30 02	30 20 30 06	29 85 29 69	80 68	53 63	75 66	52 62	

REMARKS —1885 During April the highest reading of the barometer was 30.12 inches, on the 24th and the lowest 29.78 inches, on the 30th. The highest temperature was 85°, on the 29th, and the lowest 62°, on the 9th. Rain fell on 15 days, measuring 11.1 inches. The prevailing winds were from S E and the strongest was recorded on the 27th, averaging 5.7 miles an hour during 24 hours. — In May the highest reading of the barometer was 30.08 inches, on the 4th and the lowest 29.60 inches on the 14th. The highest temperature was 89° on the 14th, 22nd, 25th, 27th, 29th, 30th and 31st, and the lowest 72°, on the 1st. Rain fell on 13 days, measuring 6.1 inches. S E winds prevailed and the strongest was recorded on the 21st averaging 9.1 miles an hour during 24 hours. — During June the highest reading of the barometer was 30 inches, on the 2nd, 4th and 5th, and the lowest 29.65 inches, on the 30th. The highest temperature was 91°, on the 29th, and the lowest 75° on the 6th, 11th and 12th. Rain fell on 11 days, measuring 15 inches. The prevailing winds were from S E, and the strongest was recorded on the 12th, averaging 8 miles an hour during 24 hours. — In July the highest reading of the barometer was 30.03 inches on the 13th and the lowest 29.60 inches, on the 3rd. The highest temperature was 94°, on the 20th, and the lowest 78°, on the 6th and 27th. Rain fell on 10 days, measuring 9.1 inches. S E winds prevailed, and the strongest was recorded on the 10th, averaging 7.2 miles an hour during 24 hours. — During August the highest reading of the barometer was 29.92 inches on the 21st, and the lowest 29.49 inches, on the 25th. The highest temperature was 94°, on the 24th, and the lowest 77°, on the 11th. Rain fell on 14 days, measuring 16.1 inches. S E winds prevailed and the strongest was recorded on the 18th, averaging 10.5 miles an hour during 24 hours. — During September the highest reading of the barometer was 30.13 inches on the 28th and the lowest 29.70 inches, on the 9th. The highest temperature was 90°, on the 25th and the lowest 74°, on the 16th and 17th. Rain fell on 6 days, measuring 4.1 inches. S E winds prevailed, and the strongest was recorded on the 26th, averaging 2.8 miles an hour during 24 hours. — In October the highest reading of the barometer was 30.18 inches, on the 17th, and the lowest 29.90 inches, on the 5th. The highest temperature was 88°, on the 14th and the lowest 65°, on the 25th. Rain fell on 1 day measuring 2.1 inches. N E winds prevailed, and the strongest was recorded on the 16th, 22nd and 23rd, averaging 7.3 miles an hour during 24 hours. — During November the highest reading of the barometer was 30.41 inches on the 13th and the lowest 29.90 inches, on the 1st. The highest temperature was 82°, on the 9th and the lowest 53° on the 13th. Rain fell on 3 days measuring 1 inch. N E winds prevailed and the strongest was recorded on the 24th, averaging 9.7 miles an hour during 24 hours. — During December the highest reading of the barometer was 30.35 inches, on the 12th, and the lowest 29.88 inches, on the 23rd. The highest temperature was 78°, on the 31st and 23rd and the lowest 51° on the 29th. Rain fell on 2 days, measuring 2.1 inches. N E winds prevailed, and the strongest was recorded on the 7th and 13th averaging 12 miles an hour during 24 hours. —1886 During January the highest reading of the barometer was 30.35 inches, on the 5th, and the lowest 29.80 inches, on the 22nd. The highest temperature was 76°, on the 9th and the lowest 42° on the 30th and 31st. Rain fell on 4 days, measuring 2.1 inches. N E winds prevailed, and the strongest was recorded on the 30th, averaging 10.4 miles an hour during 24 hours. — In February the highest reading of the barometer was 30.30 inches, on the 19th, 22nd and 23rd and the lowest 29.90 inches on the 5th. The highest temperature was 62°, on the 26th, and the lowest 44°, on the 1st, 8th and 22nd. Rain fell on 3 days measuring 1.2 inches. N E winds prevailed, and the strongest was recorded on the 7th, averaging 10.4 miles an hour during 24 hours. — During March the highest reading of the barometer was 30.20 inches on the 5th, 6th and 29th and the lowest 29.80 inches, on the 22nd. The highest temperature was 80°, on the 17th, and the lowest 52°, on the 25th and 26th. Rain fell on 9 days, measuring 4.1 inches. S E winds prevailed, and the strongest was recorded on the 15th, averaging 8 miles an hour during 24 hours.

## DR E A ALDRIDGE'S REPORT ON THE HEALTH OF HOIHOW (KIUNGCHOW)

For the Half-year ended 31st March 1886

THE health of both foreign and native residents at this port has during the last six months on the whole been good. We have had a remarkably dry winter and very little cold weather. One foreigner was for some weeks confined to the house by remittent fever, with some enlargement and suppressed action of liver. There were also some cases of ague. It would seem curious that that should have been the case during such beautiful weather, and it can only be accounted for by the fact of there being so much less water in the creeks and covering the plain to the north of the town during the winter months. The drying up of the ground develops the malarial poison, while the houses of foreigners, situated as they are on the northern outskirts of the town, are fully exposed to this miasma. It is not during the steamy, damp weather of summer, but during any dry season, that fevers are most prevalent among foreigners. The houses they occupy at present, though cooler, are doubtless not as healthy as they would be if built farther inland.

It gives me pleasure to record the arrival, in November, of Dr H M McCANDLISS of the American Presbyterian Mission. It is in contemplation by the society to erect suitable hospital buildings in Kiungchow, where he may be able to administer medical relief to the natives.

The officials and merchants of this district, considering that the medical knowledge of the men who professed to be native doctors was of the very poorest description, subscribed a large sum of money, and in June last converted the Government school buildings at Hoihow into a hospital. The hospital is conducted on the lines of the Hongkong Tungshwa Hospital, and the services of three men, who have received a medical training in that institution, have been engaged. Medicine and advice are given gratis to the poorest applicants, and prescriptions to those who can afford to pay for the making up of the same at one of the native drug stores. When necessary, patients are attended at their homes, the hire of the doctor's chair coolies being only asked for. The chance of obtaining better native treatment has been greatly taken advantage of, and the hospital so far has been a success. During the hot, unhealthy months of June, July and August, when so many natives suffered from bowel complaints, the hospital books record that advice was given on 7,300 occasions. The average monthly entries since the opening have been about 1,100. Vaccination was commenced at the hospital in the middle of December, and will continue to the end of April. Up to the end of March 1,033 were vaccinated. With the exception of the first few days, arm-to-arm vaccination has been performed, the charge being 40 cash. This small sum is given to the mother of the child from whose arm the lymph is taken. Should the doctor be asked to visit the parent's house, a private fee of a dollar or so is expected to be paid. Hainanese have a greater dread of small-pox than of any other disease, and vaccination has for the last seven years been so extensively and effectually performed that I have not seen or heard of a single case of variola during a five and a half years' residence in Hoihow. Before vaccination was practised I am told that

the natives performed inoculation by introducing small-pox scabs into the nostrils, and also swallowed them in cakes

As it was proposed to reopen the copper mines in the Changhwa and Tamchou districts, a party of Chinese from Hongkong went there prospecting in January. During the three or four days they were there the country was enveloped in mist that only lifted for a short time in the middle of the day, but there was no rain. Though only there such a short time, they became so ill that they had great difficulty in getting back to Hoihow.

When I was called in I found the whole party suffering from malarial fever. One man was unable to speak or swallow, and died in three hours, and another expired the day following. There was only one of the seven explorers that had but slight fever, the four others had high fever. Temperature,  $100^{\circ}$  to  $104^{\circ}$  F, tongue furied and tremulous, skin dry and of dusky colour, bones aching, headache, eyes bilious, vomiting, constipation, urine scanty. Under treatment by purgatives and large doses of quinine they recovered sufficiently to be able to leave the island in a few days. Thus, of seven young men from 23 to 36 years of age, two died, and the others suffered more or less severely. The officials sent a guard of 10 Hainanese soldiers for their protection, these natives did not escape the poison, and three of their number died on their return to Kiungchow.

Foreigners have now resided in Hoihow for exactly 10 years. It may be thought interesting to give a short summary of the diseases attended during the last five years among the 29 foreigners that lived in Hoihow for at least 12 months of that time. Considering that these were young men in the prime of life—19 of the 29 being members of the Consular and Customs services,—the great amount of sickness is certainly condemnatory of the unhealthiness of the port.

*Chronic Rheumatism*—10 cases. Synovial, 2, 1 was with gonorrhœa, the left knee-joint being affected, in the other case both knee-joints and ankles suffered. Lumbago, 1, it was contracted by wearing only a short sleeping jacket and allowing the night air to blow on the back. The pain, which was very acute, began regularly about 1 A.M. and lasted until daybreak, when it almost suddenly disappeared for the remainder of the day. Hypodermic injections of morphia, and quinine brought about a cure. Sciatica, 1, cured by very large doses of iodide of potassium.

*Cholera*—1 case, fatal. This was described in the *Customs Medical Reports*, xxv, 12.

*Febriola*—Several severe cases. An attack often comes on after long exposure to the sun (febris ardens). At other times the cause is malarial poison, the fever running high for several days and the disease seeming to be really intermittent fever, the paroxysms for some cause not recurring or only doing so at uncertain intervals. I have experienced two attacks of this fever myself, each lasting some days, on both occasions being delirious and troubled with difficulty of breathing at night-time, the temperature running up to about  $105^{\circ}$  F.

*Enteric Fever*—1 case, very mild.

*Intermittent Fever* attacked 18 persons. Though a man here has often several attacks, quinine in most cases prevents a second paroxysm.

*Remittent Fever*—4 cases, 3 were attended with some enlargement of liver. In one case there were bad symptoms of a typhoid character.

*Gonorrhœa*—5 cases, 1 was attended with ophthalmia and synovial rheumatism.

*Herpes Preputialis*—1 case.

*Syphilis*—4 cases, in all but one the disease had been in the system for some time, and one or other had ozæna, palmar psoriasis, ulcer on leg, and thickening of periosteum of the long bones. The ozæna and ulceration of the nasal bones were cured by the inhalation, every other day, of the fumes from 20 grains of oxide of mercury heated over a spirit lamp.

*Dysentery* —1 case

*Chronic Diarrhoea* —3 cases

*Hæmorrhoids* —3 cases

*Orchitis* —1 case, there was no gonorrhœa

Three men were troubled with *round worms*. One day a man fell down in the street, and for nearly two hours repeatedly fainted and had severe cramps in the limbs, it was afterwards discovered that he had a *tapeworm*.

There were some cases of *tinea cucinata*

A *morphia habituë* came under my treatment

He was 39 years of age, looked prematurely old, and had a broken down constitution, the result of rheumatism, morphia and fast living. He had begun first to give himself hypodermic injections of morphia at another port, for the relief of the pain of chronic rheumatism, that left him with impaired motion in one shoulder-joint. Under my supervision he made an attempt to rid himself of the habit by gradually reducing the quantity of morphia and the number of injections, and taking tonics and alcoholic stimulants. The result was not satisfactory, want of sleep, diarrhoea and depression prevented a cure. I was greatly pleased when a supply of morphia that he had himself ordered from Hongkong did not arrive, for he was then compelled to go without. A most miserable week was passed, and he suffered from severe prostration, exhausting sweats, vomiting, diarrhoea and sleeplessness. At the end of a fortnight he was in his office again, without any craving for the drug, and rapidly improved in health. The satisfactory termination of this case proved plainly that abrupt withdrawal, and not gradual reduction, is to be recommended.

Having frequently been called in to attend one or another of a friend's household, I obtained from him a record of a year's ailments, the gist of which I now give.

His loss in weight from chronic diarrhoea of three or four weeks' duration had been about 27 lb. Everybody connected with his establishment had been sick. One coolie died from remittent fever, and the successor taking ill and never returning, the natural inference was that he too succumbed. His boy was away with remittent fever for over three months, but ultimately recovered, the boy's first cousin, who took his relative's place, had intermittent fever for a few days. The assistant cook was ill for some time with malarial fever, and the last of a long line of coolies was then away with the same complaint. A foreigner had only been in Hoihow and resided in his house for a few days when he was seized with remittent fever and laid up for a couple of months.

This closed the list of ailments in a foreigner's house during one year.

The above will give some idea of the unhealthiness of Hoihow, and what a terrible scourge malaria is to both foreigners and natives alike.

Reviewing the diseases among natives for the last five years, I have to report that during the summer of 1881 there was rather a severe epidemic of cholera in Hoihow and Kungchow. In 1882 there were very few cases of cholera near here, though other parts of the island, more especially the west coast, suffered greatly. In 1883 there was an unusual freedom from diseases of a choleraic character. In 1884 diarrhoea caused a considerable mortality among the infantile population of the villages near Hoihow. Several deaths from dysentery and choleraic diarrhoea occurred among the soldiers and sailors quartered in the long boats that were moored to the banks of the Hoihow creek, with very inadequate protection from rain and sun. The following case had the symptoms of true cholera —

6th July 1884 — SHUI YING, aged 30 years, Cantonese, marine under the command of Colonel CHENG, an opium smoker, taken ill at 4 A.M. I first saw him at 9 A.M., he had then vomited three or four times, and had passed three loose motions. Except when cramps seized him, he lay in a listless state with his eyelids half open. Radial pulse just perceptible, but could not be counted, temperature below normal, nails blue, skin of tips of fingers and heels wrinkled, urine suppressed. Sinapisms employed, hypodermic injection of  $\frac{1}{2}$  grain of morphia, brandy and one drop of carbolic acid given every half hour. At 11 A.M. there was some improvement, there had been no return of the vomiting and purging, the body was

warmer, and the man felt better. Another morphia injection was given. This rally only lasted for an hour, and he expired before 2 P.M.

The Hunan braves stationed round Kiungchow suffered severely from the effects of the climate, and it is estimated that upwards of 1,000 met their death in Hainan. These poor fellows, after the first few weeks of their arrival, during all the excitement of the war, were always most friendly and polite when they encountered foreigners. They arrived totally unprovided with medical attendants or medical stores. This want was the cause of an immense amount of suffering and loss of life that could have been prevented by men with a little knowledge of surgery and the treatment of malarial fevers. It is to be hoped that the Chinese may have learned during the late war that in a military campaign medical assistance to their own sick and wounded soldiers is in no way secondary in importance to the destruction of the enemy, and that they will now have men trained to be able to prevent such a want ever occurring in the future.

Occasionally there was a *mélee* between the soldiers of different provinces stationed here, or between soldiers and villagers, and I attended several cases of sword cuts.

One soldier that I was called to had the ankle-joint cut into and the foot almost severed from the leg. Amputation was really the proper course, but this was refused, and I was only allowed to stop the hæmorrhage and dress the wound. The man was sent at once to Canton, and no more was heard of him here.

A soldier, for some serious offence, had been dismissed his regiment, with the cartilage of one ear cut through and left hanging down from only the lobe. Though not seen for two days, I was able to stitch up the piece and heal the ear most successfully. Much to the satisfaction of the man, the fact of the whole piece not having been completely cut away (by which the infliction of a severe punishment was intended) proved the means of his recovering a sound ear.

Many of the soldiers were opium smokers, so that when such men were attacked with affections of the bowels the good effects of treatment by preparations of opium were greatly diminished.

A rude form of cremation was adopted by the Hunan men. The corpse was placed over a lighted pile of wood and only sesamum seed until the flesh was charred, the bones were then scraped with knives and placed in a basket. Five or six junks loaded with these baskets of bones left for Canton, the bones being sent on from there to Hunan. One junk took 250 baskets and a lot of sick soldiers, half of the men dying before reaching Canton.

Affections of the chest in this warm place are naturally most uncommon. There are, however, deaths from phthisis, and during the colder months from acute bronchitis among young children.

Of the eruptive fevers, measles, with only mild chest complications, and chicken-pox occur here. Mumps has also been seen.

Fractures and dislocations are rare, and I have only been called on to set a COLLES'S fracture of radius.

Last year two calculi were removed, after having caused retention of urine for 20 hours by impaction in the penile urethra.

Hæmorrhoids and fistula in ano are very frequent, in fact, there is a common saying among the natives here that "of every 10 men 9 are afflicted with piles." The application of powdered cutch and an infusion of mango leaves is the usual treatment adopted by them.

Several cases of opium-poisoning have been treated successfully. The women set little value on their lives, and suicide is frequent. A mere squabble of words is often enough to cause a woman to swallow a large dose of opium or hang herself.

There is really very little actual poverty among the Hainanese living round Hoihow, and it may be on this account that infanticide is not greatly practised. When, for some reason or other, a child is not wanted, abortion is naturally preferred, and many native plants and drugs—such as safflower, sapanwood, native sulphate of soda, manis scales, the ashes of the paper on which silkworms' eggs have been hatched infused in yellow samshu—are taken in the hope of bringing about a miscarriage. Should infanticide be performed, it is usually done by smothering the child in a bucket of burnt-wood ash immediately after its birth.

*Diseases among Animals*—In 1881 cows and buffaloes died in great numbers from a very contagious disease (rinderpest?). In 1883 there was a fatal disease among pigs. The symptoms were refusal to eat or move about, heavy breathing, increased secretion of saliva and urine, inflammation of eyes and lungs, and death in about three days. In 1884 glanders was introduced into the island, presumably by some ponies that were brought over from the mainland by the soldiers. A pony of mine died from glanders and farcy buds. Diarrhœa sometimes attacks poultry, and in a few days whole yards are cleared of their live stock—fowls and ducks only living two or three days after they have been seized by the disease.

The following meteorological table is drawn up from readings taken at the Custom House, Hoihow latitude,  $20^{\circ} 3' 13''$  N, longitude,  $110^{\circ} 19' 3''$  E —

METEOROLOGICAL TABLE

YEAR AND MONTH	WINDS							BAROMETER		THERMO- METER		No of Days Fog	No of Days Rain	AVERAGE RISE AND FALL OF TIDES	
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	Highest	Lowest	Highest.	Lowest			Highest.	Lowest
1885							Miles	Inch	Inch	°	°			Ft in	Ft in
October	22	3			6		1.6	30.18	29.94	86	72		4	3.9	1.0
November	27	1			2		1.5	30.40	30.00	81	64	2	2	3.9	1.2
December	22	4	1		4		1.5	30.34	29.95	83	62	3		3.11	1.2
1886															
January	23	3			5		3	30.42	29.82	80	52	5	6	4.0	1.4
February	23	1			4		3	30.36	29.90	74	51	16	17	3.8	1.2
March	13	8			10		3	30.25	29.80	85	64	6	7	3.5	1.2

## DR A S DEANE'S REPORT ON THE HEALTH OF WUHU

From 1st October 1880 to 31st March 1886

DURING this period the health of the foreign community has on the whole been satisfactory, considering the insanitary and ill-constructed houses the greater part of them are still compelled to occupy. The wonder is there has been so little sickness among them, and no deaths. Our seasons seem to vary a good deal, and forecasts of what kind of weather to expect are not easily arrived at. Extreme changes of temperature take place during the spring and autumn, then influenza, chest affections and fever are prevalent, but influenza and chest affections belong more particularly to the spring, while fever is most noticeable during the autumn. The thermometer during the summer seldom rises above  $91^{\circ}$  F in a situation unheated by radiation from surrounding objects, but if placed in the upper stories of some of our dwelling-houses will reach  $101^{\circ}$  or more. Although the temperature under ordinary circumstances is never very high, yet  $91^{\circ}$  in the humid atmosphere that envelopes us is most enervating and depressing. The average minimum temperature during the winter is about  $27^{\circ}$ . Thunderstorms are not of infrequent occurrence from April to the end of June. Some seasons they occur all through the summer, and, as a rule, are generated over the vast marshes of Western Anhwei. They work up from the west, usually against a light easterly, south-easterly or north-easterly wind, reaching us between 4 and 7 o'clock in the evening, are of no very distant origin, and do not travel far beyond us, dissipating when they reach high land 10 to 20 miles to the eastward of this port. Of course we have thunderstorms that come from any direction, and burst at any hour of the night or day, but the majority of those we experience are generated to the westward of us.

During the period under review 10 cases of malarial remittent fever occurred, only three of these, however, in adult males, were of that variety accompanied by abdominal symptoms, very high temperature, delirium and other ataxic phenomena, but as it is not my intention to dwell on this subject at present, I pass it over. One case of variola, of more than average severity, was treated during the winter of 1880.

The patient was covered with eruption, and suffered a good deal. As soon as a vesicle formed on the face it was punctured, on the right side of the face with a needle dipped in tincture of iodine, and on the left side with a needle charged with a 4 per cent solution of nitrate of silver. This treatment was repeated as often as was necessary until the 9th or 10th day of the eruption, when the vesicles so treated dried up, and the patient recovered in 35 days with but three almost imperceptible marks on the side of the face treated with the solution of nitrate of silver. The iodine caused considerably more irritation than the nitrate of silver, and when the scabs separated, several ulcers about the size of a pin's head were left



—perhaps the result of too frequent introduction of the tincture of iodine,—but these healed in a few days, and were not followed by pitting \* To relieve the pruritus the following formula was used —

R Liq morph mur	℥iv	Glycerini	℥iv
Acid hydrocyan dil	℥ij	Aquo camphore	ad ℥vj
Acid carbol	gtt xij		

1½ oz of this lotion, taken up with a small sponge, was applied, at bedtime, all over the surface of the body and limbs, and proved very successful in allaying the intolerable itching and in giving the patient quiet sleep throughout the night, when full doses of opium failed to have effect on previous nights Caution, however, is necessary in its use if many of the vesicles or pustules happen to be open

Of other affections occurring among the foreign residents there have been none of sufficient importance to call for comment, but the following account of an accident through the careless use of fire-arms may not be out of place —

*A* and *B* were out with their guns, one on either side of a strip of reeds about 25 yards wide *A*, being to the left of *B*, fired at and wounded a deer that started up between them, and at the same time lodged some of the shot in his companion *B* Having discovered what he had done, he rendered all the assistance that lay in his power He found his companion lying upon the ground, bleeding profusely from the left nostril, and, becoming alarmed, proceeded to plug the nostril with a handkerchief, then *B* complained of choking from the blood running down his throat, whereupon the plug was removed and the choking sensation ceased, but blood still continued to pour from the nostril *A* had now no other resource left, and simply stood by in anguish, watching, as he thought, his friend's life on the ebb, when, all at once, an attack of syncope came to the rescue, the hæmorrhage ceased, *B* revived, and, after a short time was conveyed home in a boat When I saw the patient there was a wound in the left temporal fossa, and another over the spine of the left scapula, caused by the entrance of two pellets of shot, each weighing 25 grains There was no hæmorrhage, the left lower eyelid was discoloured, the discoloration being most marked near the inner canthus On passing a probe through the wound in the temporal fossa, its point was felt low down behind the lower eyelid, showing that the pellet of shot, having struck the temporal bone obliquely, was deflected downwards and forwards behind the malar bone, through the outer wall of the orbit, and, following the floor of the orbit, had entered the left nostril below and behind the inner canthus, whence it possibly fell to the ground through the anterior nares or passed into the œsophagus through the pharynx The eye was uninjured, but there was considerable swelling of the face, which subsided under treatment, and, as far as this wound was concerned, the patient was well on the 8th day after the accident The grain of shot that entered at the shoulder penetrated deeply, and could not be found An abscess formed, liberating a few pieces of cloth, after

\* The practice of puncturing and introducing irritants into the vesicles, if thoroughly carried out from the commencement of the vesicular stage, yields, as far as my experience of 14 cases of small pox is concerned, very satisfactory results. It is not sufficient to puncture a vesicle once or twice, the puncturing should be repeated every time fluid forms within it. Vesicles on the eyelids and on the lips should not be irritated by the frequent introduction of solutions of iodine or nitrate of silver, since it may be followed by erysipels In these situations the solution of silver is to be preferred to that of iodine, for it causes less inflammation, and should be introduced once, or, after an interval of two days, at most twice, but the vesicles on each occasion they are seen to contain fluid should be evacuated with a clean needle

[On one occasion in 1867, when I was acting as house physician to a large fever hospital in Ireland, a young girl was admitted in the vesicular stage of semi confluent variola. I was experimenting at the time on the various methods proposed for preventing pitting The plan adopted in this particular instance was to cover the face with a paste of whiting mixed with carbolsed oil, while the patient's hands were confined in a sort of mitigated strait waistcoat. The result was eminently satisfactory No scar remained anywhere except on the point of the chin, where the friction of the bed clothes continually rubbed away the application. Previous to her illness the girl's appearance was, I was told, homely in the extreme, but she was discharged in possession of a dimple on her chin, which lent her a bewitching air whenever she laughed, and I believe that from that time out she carefully cultivated a cheerful expression of countenance]

which the wound healed and the patient recovered without any defect, having had a narrow escape of losing an eye, to say nothing of death, for had the grain of shot struck the temporal bone perpendicularly, it in all probability would have penetrated the brain

With the diseases or accidents occurring among the Chinese my chances of observation have been restricted, but, as far as I can learn, there has been only one epidemic in Tai-p'ing-fu, Ning-kuo-fu or Wuhu within the last six years, and that occurred during the exceptionally dry winter of 1880, when small-pox made its appearance and attacked a large ratio of the population of this province, a fact corroborated, as far as Wuhu was concerned, by a glance at the faces of people passing through the streets. It was said, however, that the death rate was low, being greater among those over than under 35 years of age. This epidemic gradually died out about February 1881, and the disease has not since been seen except in isolated cases, probably the result of inoculation.

Cholera, or a disease commonly called by this name, was very prevalent during the summers of 1881, 1883 and 1885. I believe it will be found, to a greater or less extent, every year in all the large towns throughout this province during the latter part of summer. It appears in isolated cases, seldom occurs twice in the same house, and, even in seasons when most prevalent, it does not take the form of an epidemic attacking a large number of people in close proximity to those affected with the disease. A case will occur in the southern suburbs to-day, and to-morrow one will be heard of from the other end of the city, perhaps a mile distant. But although the disease is not epidemic, yet many suffer from it, about 70 per cent of whom are said to die usually in from 4 to 12 hours. Still, it can in no way be compared to epidemic cholera in the devastation it causes. The people are naturally much alarmed at the rapidity with which death supervenes upon an attack, and at the very small chance there is of recovery. That these facts cause exaggerated statements as to the number of cases which really do occur I have little doubt.

For the following account I have to thank Mr M. BOYD BREDON, at the time Assistant-in-Charge of this port, who took much pains in having certain questions on "cholera," as it occurs here, answered for me —

From the Chinese point of view there are two kinds of cholera known here—"wet" and "dry,"—both of which are contracted by sleeping in a draught, together with exposure to the sun on the following day, on the evening of which the disease begins to make itself manifest by pains in the abdomen.

The "wet" variety commences with vomiting and purging, the dejections at first consisting of the contents of the bowels, later on they assume the character of a thin yellow fluid, containing no solid matter. Perspiration flows freely at first, but afterwards the skin becomes dry. Of this variety 90 per cent of the cases are said to die.

In the "dry" attacks there is a desire to vomit and purge with an inability to do so, and there is high fever without perspiration. This form is not so fatal as the "wet," yet many die from it.\*

In both varieties there is suppression of urine, pain from cramps in the stomach and in the limbs is very severe, anything swallowed is immediately vomited, and before death takes place the skin all over the body becomes of a slightly blue colour, darkening after death.

The treatment at first consists in administering a powder called locally *sha-yao* (痧藥), to produce sneezing, and in rubbing the limbs to relieve pain caused by cramps, later on, puncturing the superficial

\* This I take to be a form of insolation.

glands with a needle is resorted to. If blood does not flow from these punctures, the tips of the fingers and toes are punctured, and should blood not escape from these, the case is given up as hopeless. The redder the blood that escapes from the punctures the more hope there is for the patient. Sometimes the blood is thick and of a dark colour, which is considered very unfavourable. Cases die as a rule, or recover within 10 hours from the commencement of the attack. Should they linger longer the remedies are changed to those for dysentery, for blood now begins to make its appearance in the stools.

During the summer of 1883 I accidentally had opportunities of seeing two moribund cases of the "wet" variety of this disease, in both of which the face and upper and lower extremities were cyanosed, the eyes deeply sunken, heart action imperceptible, respirations slow and shallow, and the surface quite cold. To all appearance these were cases of true Asiatic cholera, but a difference was at once seen on examination of the stools, in that they were of a light yellow colour and contained some mucus. Now, if all the cases that occur are like these two, and I have no reason to think that they are not, the disease, instead of being called cholera, would be more aptly described as a severe form of gastro-intestinal catarrh, to which many more succumb than otherwise would if proper treatment were adopted. The cyanosis towards the termination of life may be accounted for by the enfeebled state of the heart and slow respiration, combined with the excessive and prolonged morbid intestinal transudation, draining much serum from the blood, thereby rendering it thick, more difficult of circulation, and consequently deficient in oxygen.

As I said before, the disease does not appear as an epidemic, and it certainly is neither infectious nor contagious. A Chinaman affected with it vomits anywhere, the covering of his bed becomes soaked with the discharge from his bowels when he is no longer able to go to stool, and when he has died, his bedding is imperfectly washed in the nearest canal or pond, hung up in the sun to dry, and a night or two afterwards someone else uses it, who does not contract the disease. Besides this, a considerable quantity of the dejections finds its way into the canals, which have next to no current through them during the summer, and from which many of the boat population are in the habit of quenching their thirst with water taken up between the hands. Yet we do not hear of the disease spreading among this section of the people. The disease originates in, and does not spread beyond, the person affected. It is chiefly confined to the debilitated among the working classes, coolies, etc., is more prevalent during the months of July, August and September of oppressively hot summers than in those of medium temperature, and is caused, most probably, by the ingestion of large quantities of unripe fruit, particularly peaches and the different varieties of melons, aided by sleeping in a draught or other cause of chill, and aggravated by exposure to a hot sun.

Accidents among the Chinese are not of common occurrence, owing, in the first place, to their having nothing in the country likely to cause them, and in the second place, to the very phlegmatic way they carry on their business generally. The following recounts a case that occurred here some three years ago —

A child playing with its mother—a woman about 25 years of age—whilst on her lap forcibly thrust a porcupine quill up her left nostril. Free epistaxis followed, lasting for three hours, when a clot formed and the bleeding lessened, but did not completely cease, some blood passing into the pharynx and about three drops in a minute flowing from the anterior nares. The woman remained in this condition for three days before she was brought to me for assistance. Having neither eaten nor slept for two days previous to

my seeing her, she presented the most ghastly appearance, was quite blanched, unable to stand up, and her breath was extremely foetid. I could not ascertain what damage the porcupine quill had done, but since there was still some hæmorrhage it was necessary to plug the nostril. I had passed a BELLOC's sound, and was unreeving the thread from the point of the instrument when the woman fainted, and her two companions, who were supporting her upon a chair, allowed her to fall to the floor. I withdrew the sound, and having for some minutes used the ordinary means to resuscitate her without success, I feared the woman had died. She was quite cold, with no perceptible action of the heart, and looked like a person dead some time. Artificial respiration was set up, and 40 drops of sulphuric ether injected subcutaneously. After a lapse of 15 minutes the heart began to beat feebly, but there was no respiratory effort. Artificial respiration was kept up for 20 minutes longer, when the woman at last showed signs of returning consciousness, and in 50 minutes from the time she fainted was sufficiently recovered to be able to swallow a draught containing sulphuric ether and aromatic spirits of ammonia. She continued steadily to improve, being given small quantities of brandy with milk at frequent intervals for an hour and a half, when she was carried to her home in a much stronger condition than when I first saw her. The epistaxis ceased when the woman fainted, and did not return, a firm clot having formed during the prolonged state of syncope, but I learned afterwards that this woman, owing to the want of suitable care and nourishment, made a very slow recovery, being in an emaciated state for more than three months after the accident.

*Obstetrics*—The Chinese here say that the natural position of the head of the fœtus during gestation is behind and a little to the left of the mother's umbilicus, that when labour pains come on the uterine contractions gradually turn the fœtus until its head is brought down into the pelvis, and that breech presentations result from failure in this natural process of version.

To the Chinese mind the idea of a man delivering a woman is quite ridiculous, but the women of China are not different from those of other countries, being particularly amenable to any course of treatment that will relieve them of their offspring when nature has proved inadequate to the occasion. At present it is only as a last resort that the foreigner is sent for, nevertheless I have been asked to attend a considerable number of women in labour. When I am summoned to a case I must be ready to start at once with the man who calls me, he has possibly come from a distance, and urgently demands immediate aid. If I cannot go instantly he will not wait a moment, no matter how long the previous neglect has lasted, consequently, I have attended very few of the cases I have been requested to treat.

When the medical man enters the house of the better class Chinaman, he is received with the utmost civility. In the case of a woman in labour he is, after the usual polite formula, generally asked as to the way in which he intends to deliver her. The woman herself is anxious he should see her at once, and if there be any obstruction, which there seldom is, it is on the part of the friends. On the termination of the case the practitioner is ushered to the door in the most courteous manner, and the friends of the patient thank him in the warmest terms for his assistance.

Among the Chinese I have never attended a woman in child-bed who was under 70 or over 160 hours in labour before I was sent for. Of 19 women I have treated, 11 were cases of powerless labour delivered by the forceps. The mothers, aged from 22 to 35 years, 72 to 94 hours in labour, recovered, four of the infants being born dead. Six were cases of breech presentation, terminated by drawing down a leg and delivering in the usual way. The mothers

were from 24 to 42 years of age, and from 76 to 160 hours in labour, one of them died and five recovered, four of the infants being born dead

The woman that died was 42 years of age, nearly 9 days in labour, and in a moribund state when I saw her. On passing my hand into the uterus a quantity of fœtid gas escaped, the child was putrid, and the patient died two hours after delivery

The remaining two cases were hand presentations, of which in one the mother, 29 years of age, 70 hours in labour, delivered by version, recovered, but the infant was born dead. The other case is as follows —

As I was walking through the city one afternoon I was stopped and asked to see a sick woman in a house close by. I complied with the request, and found a woman, 26 years of age, 76 hours in labour, with hand presentation. I tried to turn, but so tightly was the head wedged down into the pelvis, and so closely did the uterus grasp the body, that I was unsuccessful. From the position of the head and the dilated state of the passages, I thought that if I tied the hand of the fœtus to a gum elastic catheter, and by this means returned and retained the arm above the head while I applied the forceps, there would be no difficulty in delivering. I determined upon this plan and went home to get forceps, etc. I was away about an hour, and on my return was surprised to find the infant lying dead upon the bed, minus one arm, which the midwives had twisted off, and the woman was delivered in a few minutes afterwards. Whether this is the usual mode of procedure in such cases I do not know. It is the only case of the kind I have known or heard of.

In none of the above cases was there any deformity of the pelvis, there was no case of flooding, and, with one exception, all the women made good recoveries. I have tried to ascertain why I have been sent for in these cases, and am told it was simply to save the lives of the infants, since the midwives, so it is said, are well acquainted with modes of delivery when the fœtus is known to be dead and the outlets of the pelvis are natural in size. But where there is obstruction, deformity, or the head of the fœtus is unusually large, in conjunction with powerless labour, I imagine both mother and child are lost, for I have heard there is no midwife in Wuhu competent to use cutting instruments to remove the fœtus. In some of the cases I considered chloroform necessary, but its inhalation was sternly rebelled against, and I had to deliver without its assistance. Anæsthetics, however, are seldom needful in labours of over 60 hours' duration, for by that time the midwives have so mauled the parts that they have ceased to be very sensitive.

I have inquired as far as possible, and am led to believe that the percentage of malpositions, deformities or powerless labours is small, but when they do occur the infants are all lost, and the mortality among the mothers is very considerable. If timely and skilled assistance, however, is rendered, much may be hoped, for the Chinese are possessed of great powers of endurance and recuperation, and severe inflammation seldom follows even the most untoward parturition.

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## DR J H LOWRY'S REPORT ON THE HEALTH OF PAKHOI

For the Half-year ended 31st March 1886

Up to the end of December 1885 the weather kept pleasant, but during January, February and March we experienced a great deal of cold, bleak weather, which was very trying to invalids. Rain fell in February and March, but in no quantity.

A bad case of diarrhoea occurred in December, but gave way to treatment, aided by the cooler temperature.

One death has to be reported from chronic pulmonary phthisis.

The patient had been ill since the spring of 1884, arrived here in August 1885 from the North, and it was hoped the southern climate might have stayed the disease. The fever was persistent throughout, the other symptoms were cough, night sweats, occasional diarrhoea, and, latterly, sleeplessness.

A member of the Customs staff suffered from conjunctival ecchymosis, first noticed after a hard ride, it rapidly gave way to treatment.

In a case of obstinate constipation, with torpidity of liver, I have found the fluid extract of cascara sagrada very useful, and the patient has derived much permanent benefit.

The preparation of opium known as nepenthe I have found a very excellent one in cases of sleeplessness, it never leaves the usual unpleasant effects of the ordinary preparations, and does not cause constipation.

A case of sprained wrist, caused by a fall from a pony, and one of chronic synovitis of the knee, fill up the list of cases treated during the half-year.

Preparations are being made to build a hospital here for the Church Missionary Society. It will be under the superintendence of Dr E G HORDER, and it is expected that the building will be ready in six months.

Up to the closing of this Report no cases of *Luen-tai* (癘子), or bubonic plague, have been reported. The health of the native community during the winter months has been good.

I append an abstract from the Harbour Master's meteorological register taken here (latitude,  $21^{\circ} 29' N$ , longitude,  $109^{\circ} 6' E$ ) during the half-year ended 31st March 1886.

METEOROLOGICAL TABLE

MONTH	THERMOMETER						RAIN	
	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Average Day	Average Night	No of Days	Fall
October 1885	$^{\circ} F$ 85	$^{\circ} F$ 73	$^{\circ} F$ 79	$^{\circ} F$ 64	$^{\circ} F$ 79	$^{\circ} F$ 70	10	Inches 5.70
November	81	53	71	50	71	60	2	3.00
December	76	53	69	49	72	60		
January 1886	77	46	63	44	58	43	1	0.30
February	66	40	50	40	49	47	11	3.89
March	80	51	75	51	69	61	12	7.00

## DR G R UNDERWOOD'S REPORT ON THE HEALTH OF KIUKIANG

For the Year ended 31st March 1886

THE health of foreign residents and visitors at this port during the past 12 months has been less satisfactory than in former years, there having been more cases of serious illness and more than the average number of deaths

*Phthisis*—One patient, aged 44, died in April from pulmonary tubercular phthisis. He had not suffered from anything affecting the lungs worse than an ordinary cold during a residence of over 17 years in this country, till the end of November 1884, when a severe wetting seems to have set up a low form of pneumonia of the apex and upper part of the right lung. At that time he was much fatigued by over-work and want of rest, and did not take the necessary care of himself. When first examined, late in January, there was considerable emaciation, troublesome cough, constant increased temperature, colliquative sweating, and anorexia. There was condensation of the apex and upper part of the right lung in front and behind, and the lung substance had begun to break down, the sputum under the microscope showing yellow connective tissue. He had suffered from hepatitis years before, and there was atrophy of the liver to a small extent. All the other organs were healthy. The disease ran a rapid course, the whole of the right lung becoming involved and the upper part completely disorganised. The treatment adopted was nourishing food, stimulants, maltine, and cod liver oil when digestion and the absence of fever permitted. Counter-irritants and antipyretics, of which quinine invariably brought on dysuria, had no apparent effect in arresting the mischief, even for a short time. Only on one occasion, for two days, were there traces of blood in the sputum.

*Pneumonia*—Another patient, aged 42, a missionary, was seriously ill in April from acute pneumonia of the base of the left lung. He had left Algeria for China five years before on account of lung trouble, and his attack was due to exposure to cold and wet. The temperature was high and the inflammatory process was prolonged, otherwise there was nothing unusual in the case. Under counter-irritants and blisters, with, of course, careful feeding, absorption went on satisfactorily though slowly, and there was complete recovery after six weeks.

*Typhoid Fever*—In July a missionary, aged 27, was brought from Southern Kiangsi suffering from typhoid. He had already been ill three weeks, was emaciated and very weak, and had bed-sores on the back and over the left great trochanter. The evening temperature was from 103° to 103° 5 F, and morning from 101° 5 to 102° 5, the pulse, 90 to 100, the tongue coated, the abdomen full, with no tenderness on especial pressure, no eruption, and with diarrhoea, peasoup-like, three or four times a day, and easily controlled. Once there was clot in the stool. He did very well under careful nursing and diet, though the natural temperature was not reached till after the 42nd day of his illness.

At the same time with him another missionary came from the interior, unable to do his work on account of atonic dyspepsia.

Before he came to China in 1882 he was strong and healthy, and suited to a hot climate, but the Chinese fare on which he lived in the country proved too much for his years—33—and his previous regular habits as captain in a blue regiment serving in Algeria. For months before coming under

treatment he found himself less and less able to eat, and the power of digestion seemed reduced almost to the lowest point. All food, solid or liquid, caused a feeling of distension, discomfort and pain, lasting from two to four hours after meals. He was pale, anæmic and emaciated, the wasting increased, in the beginning at all events, by voluntary abstinence. The bowels were constipated. Examination failed to reveal anything abnormal in the abdominal or other organs. The pulse was from 60 to 65, weak but steady. He was much depressed mentally at his inability to continue at work and at the difficulty he found with the language. Want of sleep was also the cause of much suffering. Milk in small quantities, taken frequently, was the food most easily assimilated. Bismuth with morphia, and afterwards with pepsine in full doses, helped much to relieve the abdominal pain. Salines were used when necessary to relieve the constipation. Rest was obtained at first by a draught containing morphia, and afterwards by bromide of potassium, and from the return of sleep, improvement, mental and physical, began. The return to health was very slow, and he was sent to a seaport in the hope that the change would quicken recovery. He has improved, I understand, but very slowly.

Among other cases of malarial fever there were in August three—one of quotidian and the others of tertian intermittent—in which quinine in full doses had little effect.

The quotidian, in a boy of 6, was subdued by change to the hills, with continued full doses of quinine, the second,—tertian, in a patient of 35,—also recovered under change to the hills, with quinine and salicylate of soda in 10 grain doses three or four times a day, in the third case, neither quinine, quinine and salicylate of soda, nor arsenic, with change to the hills, had any good effect, and a trip to sea was found necessary to get rid of the mischief.

The children, born here, of two families residing in this port are liable to frequent attacks of quotidian and occasionally tertian intermittent, while their parents rarely have an attack (and then usually tertian or quartan). This is the general rule with adults unless they have had fever before coming to the district.

Only one case of dysentery was seen during the autumn, and that as a complication of low malarial fever. Quinine and ipecacuanha, with copious warm-water enemata, combined with residence on the hills, had an excellent effect, and recovery was perfect. Simple diarrhœa occurred in one case, and the most careful dietetic and medicinal treatment only kept it from getting worse, but did not arrest the malady. A change to North China helped, but recovery was not complete till the cold weather of October.

Cholera, which is generally an important factor in increasing the death rate among the Chinese population, was less prevalent than usual, and only a few cases came under observation.

*Cholera*.—A foreigner, aged 47, of the Customs out-door staff, resident in the port for two years, had for a few days had diarrhœa, of which he thought little. He was sleeping in a cot on the verandah of his house on the night of 16th September, when a squall coming, he got a chill. At 2 A.M. (17th September) he was seized with vomiting, diarrhœa, rice-water stools, and severe cramps in the abdomen and limbs. Dr. GILLISON, who was in charge at the time, was away at the hills seeing a patient and had not returned. The patient was promptly and well attended to by his neighbour in the next room, who had had some experience with cholera patients. One quarter of a grain of morphia was given, and vomited at once, a second was retained for five minutes, but a third dose was retained. Mustard was applied to the soles of the feet and inside of the thighs, hot bottles were placed round the trunk, the arms and legs were constantly rubbed, and hot drinks were given frequently. The cramps and vomiting ceased towards 7 A.M., as did the diarrhœa, but the voice remained very feeble, and the patient felt exhausted and hopeless of recovery. The temperature increased, and the coldness of the extremities was much less till 2 P.M., when all the symptoms came back, and he died the same evening.



*Cerebral Meningitis*—On the 31d September, a child, aged 2 years and 3 months, spending the hot weather at one of the bungalows in the Lushan, was noticed to be dull and a little feverish. He had fallen from a chair the day before, but the tumble was apparently so slight that little was thought of it. He was restless and slept little during the night of 31d September, and the temperature at 11 P.M. was  $103^{\circ} 2$  F. The symptoms not pointing definitely to brain mischief, it was thought by Dr GILLISON, who then saw him, that probably intestinal worms were the cause of the trouble, and a dose of santonine and calomel was given. He vomited once in the evening, and next morning, after a second dose of santonine, two large round worms were passed at stool. There was still no improvement in the feverish condition. He vomited twice during the day, the eyes were tightly closed to light, there was a good deal of twitching of the limbs, and there were signs of headache. Quinine with salicine in full doses had no effect in reducing the symptoms, and on the 5th day the signs of meningitis were only too evident. Delirium came on, with spasms of the facial muscles, and boring of the head into the pillow, and the twitching of the limbs rapidly developed into severe convulsions affecting especially the right side. The convulsions recurred often in an exceedingly severe form during the next five days. It was expected on several occasions that the child would die before the tonic spasm relaxed, and chloroform had to be used very freely, while cold was constantly applied to the head. The temperature now varied from  $102^{\circ}$  to  $103^{\circ} 5$ . Though unconscious, or only conscious to a very slight degree, the patient was yet able to swallow the nourishment and medicines given at regular intervals. On the morning of the 10th day of the illness the temperature  $100$  to  $105^{\circ} 6$ , and it was decided, in the very critical condition of the patient, to use the wet pack, signs of coming bronchial mischief notwithstanding. After 10 minutes packing, the temperature fell to  $102^{\circ} 6$ . Three hours later it had again reached  $105^{\circ}$ , and the pack having been used a second time, there was a fall of two degrees. From this time bronchitis, with its accompanying dyspnoea, added in a marked degree to the difficulties of treatment. Up to the 24th day, the history—in addition to that of the lung trouble—was of unconsciousness, the eyelids half closed and the eyes turned upwards, spasms and convulsions, with occasionally opisthotonos, frequently recurring, twisting outwards and upwards of the palms, boring the head into the pillow, or moving it from side to side, occasional rigidity of the muscles acting on the mouth and chin, and often repeated grinding of the teeth. The temperature, taken many times daily, varied from  $98^{\circ} 5$  to  $101^{\circ}$ , rarely rising above the latter point. The power of swallowing remained, though, of course, much impaired, and the signs of bronchitis were modified for the better by the treatment adopted. On the 24th day the temperature rose to  $104^{\circ}$ , and from that time till death supervened rose beyond that point  $\frac{1}{10}$  of a degree on several occasions, but did not fall below  $100^{\circ}$ . The convulsions were now less frequent, and the arms and legs were semi-paralysed and rigid, the right more so than the left, and the head rigidly thrown back, with morning and grinding of the teeth almost constantly. The patient became daily weaker, and died on the 29th September. In the treatment of the case calomel was pushed to its extreme limit, but without effect in arresting the inflammation. For the first three weeks the leaving off the application of cold water to the head was invariably followed by an increase of the temperature and nervous symptoms. Bromide of potassium had no marked effect in putting off the convulsions, and chloroform was used very frequently, and always with benefit for the time. The view taken of the illness by Dr GILLISON, who attended the patient for the first 19 days, in my absence, was that the fall on the 2nd September set up inflammation of the left internal ear, which, rapidly spreading to the meninges, led to suppuration with all its results. I entirely share his opinion.

*Vesical Calculus*—In August a missionary from that part of Kiangsi nearest the border of Kwangtung came to Kinkiang complaining of frequent micturition, occasional stoppage during the act, pain afterwards often very severe, and of at different times having passed calculi. The patient, a tall, corpulent man, somewhat pasty-faced, aged 54, but looking 60, had suffered from the complaint about eight years, and had been taking potash salts at intervals for six years, at times with considerable relief. Latterly, however, the frequency and pain in urinating had increased so much that his rest was disturbed from six to

eight times during the night, his appetite was failing, and he felt less strong than formerly. His urine contained a good deal of mucus, no traces of blood corpuscles, a small amount of albumen, and plentiful urates. Shortly after he came here, incontinence of the bladder came on in addition to his other troubles, and continued. On sounding, the cavity of the bladder was found contracted, and, by examination per rectum at the same time, the prostate was proved to be enlarged, and the presence of calculus was at once made out. Lithotomy was decided on, and at the first sitting a stone was seized and crushed, a considerable quantity of detritus being removed with the instrument at the time, and in the urine afterwards, but a larger calculus than the one crushed was felt, and could not be laid hold of from the contracted state of the bladder. The patient suffered very little at the time of operation or after, and eight days having elapsed, to allow all irritation to subside, a second sitting was had, the bladder being first filled with a weak solution of carbolic acid in warm water. On this occasion a fragment was grasped and pulverised, but the large calculus eluded the most careful attempts at seizure I could make, and the patient had to have another eight days' rest. The third time, the bladder having been distended as before, I again was foiled in attempts to lay hold of the stone. The patient suffered little during or after each sitting, there was almost no bleeding, very great care having been taken in introducing and withdrawing the instrument, and the ordinary pain was little increased. Having failed with the lithotrite, I determined, as the only thing left, to cut. Six days after the last sitting, symptoms of uræmia came on, and the patient, weakened by disturbed rest and inability to take sufficient nourishment, sank rapidly and died. Had lithotomy been done at first, the result might have been different, but the expectation that lithotomy would give the patient a better chance seemed to be well founded.

There was as usual little sickness in October, November and December.

*Pneumonia*—A member of the Customs out door staff had in the last-named month, while engaged in superintending the building of a sewer, an attack of acute pneumonia, affecting the base of the left lung. The disease ran the usual course, the 9th day being that of crisis, and he made a good recovery.

Subacute pneumonia of the right lung was encountered in a lay missionary, aged 21, resident here in February. He had for some little time before been practising voluntary fasting—unknown to his superiors, who have had too much experience of the influence of this climate on Europeans to permit that sort of thing,—and he was in poor condition. For a week before asking for help he had been feeling ill, without appetite, and sleeping badly. A marked rise of temperature on the 18th and 22nd days was caused by the imprudence of the patient. His appetite was returning, and, contrary to orders, he ate some chicken and other solid food, not to his benefit. From the beginning the case was characterised by weakness, as indicated by sordes on the gums and lips, and dry, brown tongue, with weak pulse, for the first 15 days. Free stimulation was attended with good results.

In March a child of 9 months died from capillary bronchitis after three days' illness.

There were four births during the year,—three males and one female.

Among the Chinese population the death rate has, I believe, been lower than usual. Cholera was little prevalent in summer, and one heard of but few cases of continued fever, generally so fatal to the badly nourished. Measles in a mild form was epidemic. In the convent 20 children under 3 years of age were down at one time, and all recovered. Among native midwifery cases seen the following are fortunately not common—

HENG YU, aged 37, who had had two children without anything unusual, and who last year required my help on account of "left hand presenting, the face looking forward," to deliver whom craniotomy was necessary, this year again called for help. This time the right hand was protruding from the vagina, and the child's face looked forward. Labour had been going on for 10 hours, and version was easy. There is no pelvic malformation that I can find to account for the abnormal presentations.

In a second case to which I was called the patient died as I entered the house. The placenta was adherent, and to favour its removal the poor woman was kept sitting on a pail till she died from loss of blood. It is the current belief that unless the patient sit up, the discharges will not escape, and only by severe warnings as to ultimate results will the person be allowed to lie down, even after serious operative interference.

In a third case, a small piece of adherent placenta brought on hæmorrhage 12 hours after labour. All that I could feel with the finger was picked off, and the hæmorrhage ceased, to begin again two days after. A very small piece was then found and removed, and the patient did well afterwards.

Over 7,000 came to the hospital for treatment. Here, no charge being made, it is very difficult to prevent the wards from being over-crowded, many, and especially eye cases, coming long distances in the hope of being cured.

I am indebted to Mr Harbour Master GUNTHER for the following data —

METEOROLOGICAL TABLE

MONTH	TEMPERATURE		RAIN	
	Maximum	Minimum	Number of Days	Total
1885	°	°		<i>Inches</i>
April	88	39.50	14	9.50
May	91.05	56.50	14	11.02
June	95	63	17	14.39
July	99	68.50	6	5.04
August	100	74	12	5.78
September	92	57.50	7	2.24
October	86.50	51.50	5	0.71
November	77	53.50	4	1.57
December	68.50	31.50	11	2.85
1886				
January	61	24	4	2.18
February	53	18.05	5	4.10
March	72.50	38	6	6.26

## APPENDIX.

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### PLATES ILLUSTRATIVE OF SOME DISEASES AND DEFORMITIES ENCOUNTERED AMONG CHINESE RECEIVED INTO FOREIGN HOSPITALS IN SHANGHAI

*(These Woodcuts are traced from Photographs)*

PLATE I—*Hypertrophy of Right Arm, Forearm, Thumb and Little Finger in a girl of 13*

The skin and muscles were of ligneous hardness, not nodulated. As well as could be judged, the bones shared in the hypertrophy. Only a cursory examination was permitted. The only recorded case that I can find similar to this is figured in AHLFELD'S *Missbildungen des Menschen*, Atlas, Tafel xxiii, fig 5, and described by HORING, *Wurtembergisches Correspondenzblatt*, Mar 1844. Here the right arm, forearm, thumb, index and little finger were hypertrophied. IS G SAINT-HILAIRE (*Hist gén et part des Anomalies de l'organisation*) alludes to these anomalies, but does not describe any particular case. [Gutzlaff Hospital Dr JAMIESON]

PLATE II (Figs 1 to 3)—*Front, side and back view of Adenoid Tumour of Neck and Side of Head in a woman of 44*

Growing 22 years. Weighed  $6\frac{3}{4}$  lb when drained. Contained several lacunar hemorrhagic cysts. All the skin saved except about 2 square inches. Parotid gland had disappeared or become merged in the tumour. Great vessels lay dissected out at bottom of operation wound, much flattened.

PLATE II (Fig 4)—*The same Patient five weeks after operation, when discharged*

The tension of the skin being removed, she suddenly acquired the wrinkles proper to her age, and thus although on the whole the cosmetic effect of the operation was good, she looked far older without her tumour than she did with it. [St Luke's Hospital Dr JAMIESON]

PLATE III (Figs 1 and 2)—*Man of 28 before and after removal of Fibro-lipoma of Abdominal Wall*

Tumour growing from both. Consisted of two sections partially fused at bases. The superior and smaller portion was a mass of fat in which scarcely any trace of fibres could be discovered. The lower and larger portion was imperfectly partitioned into lobules by delicate sheets of areolar tissue of which the constituent fibres were already invaded by molecules of fat. [St Luke's Hospital Dr JAMIESON]

PLATE IV—*Cystic Adeno-Sarcoma of Breast*

Growing three years. Weighed when drained 18 $\frac{1}{4}$  lb. Ulcerated at surface of adherence to skin. 22 vessels ligatured. No recurrence eight months after operation. [St Luke's Hospital Dr BOONE]

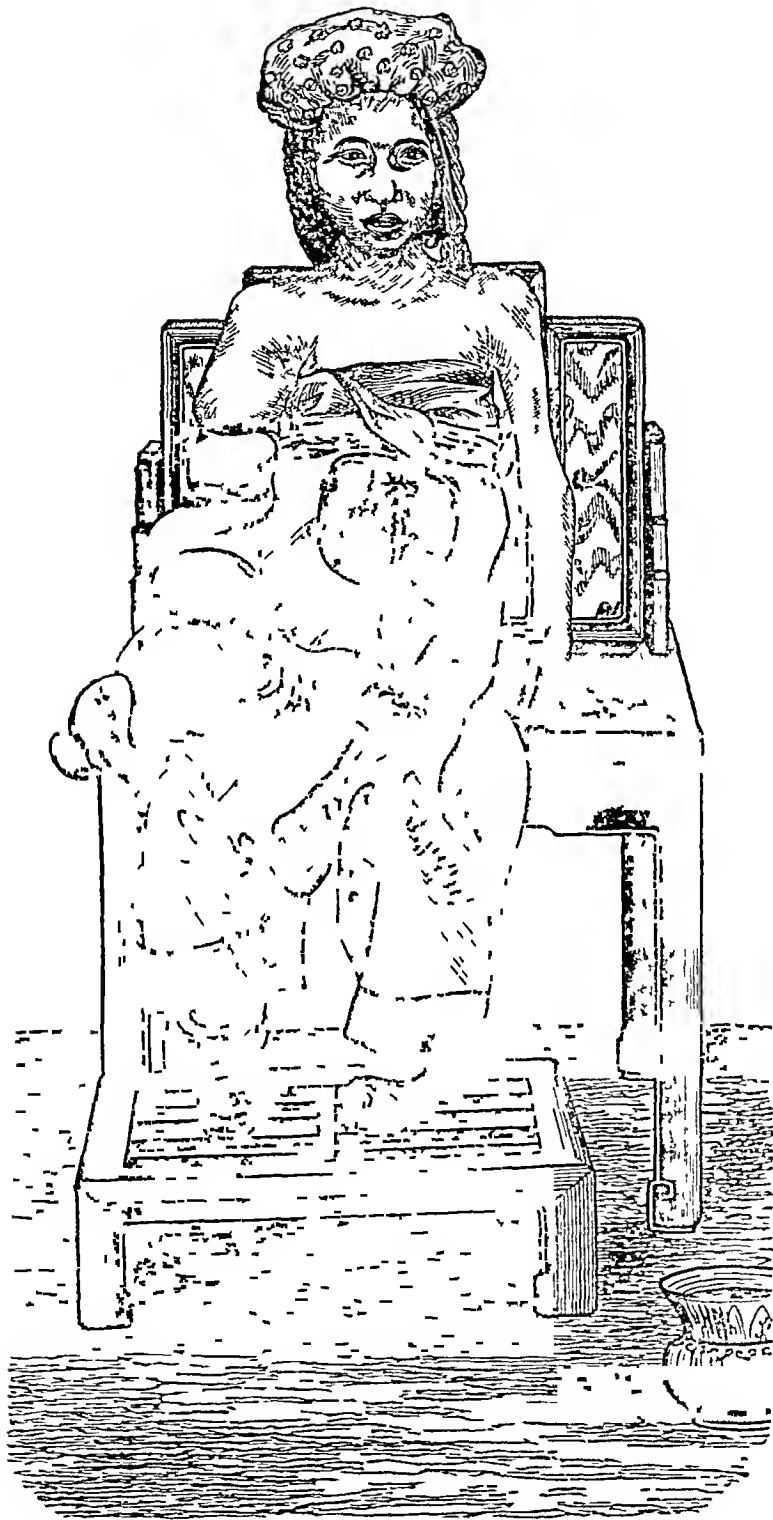
PLATE V—*Carcinoma of Breast*

Deeply ulcerated over entire surface, weighing 13 lb. Masses of infected glands surrounding axillary vessels, which lay dissected out cleanly for 3 inches at bottom of wound. Rapid recovery. Discharged well, with certainty of speedy recurrence. [St Luke's Hospital Dr JAMIESON]

PLATE VI—*Irretractable Scrotal Hernia (Congenital)*

Radical cure by ANNANDALE'S method (*Edinburgh Medical Journal*, December 1880, p 488). Discharged without perceptible impulse on coughing. [St Luke's Hospital Dr JAMIESON]

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PIRE I



PLATE II (Fig 1)



PLATE II (Fig 2)



PLATE II (Fig 3)



PLATE II (Fig 4)



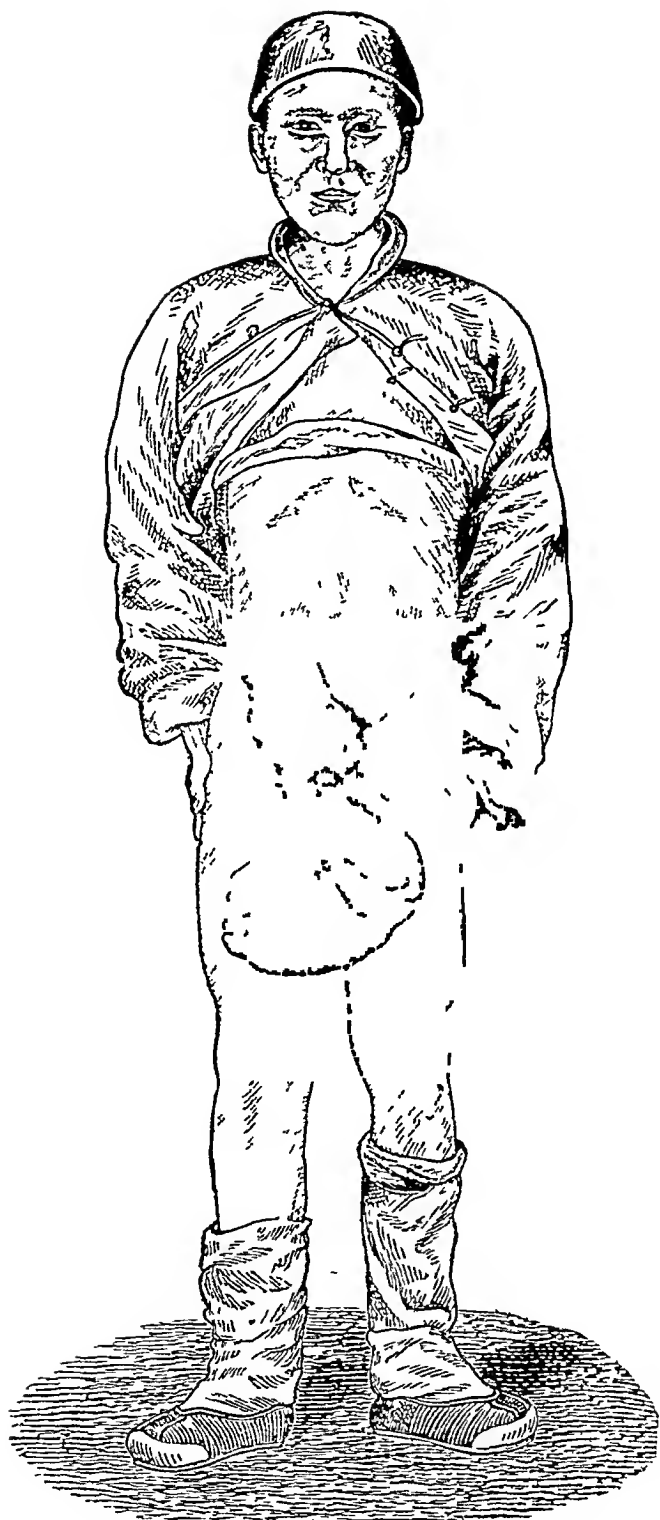


PLATE III (Fig 1)

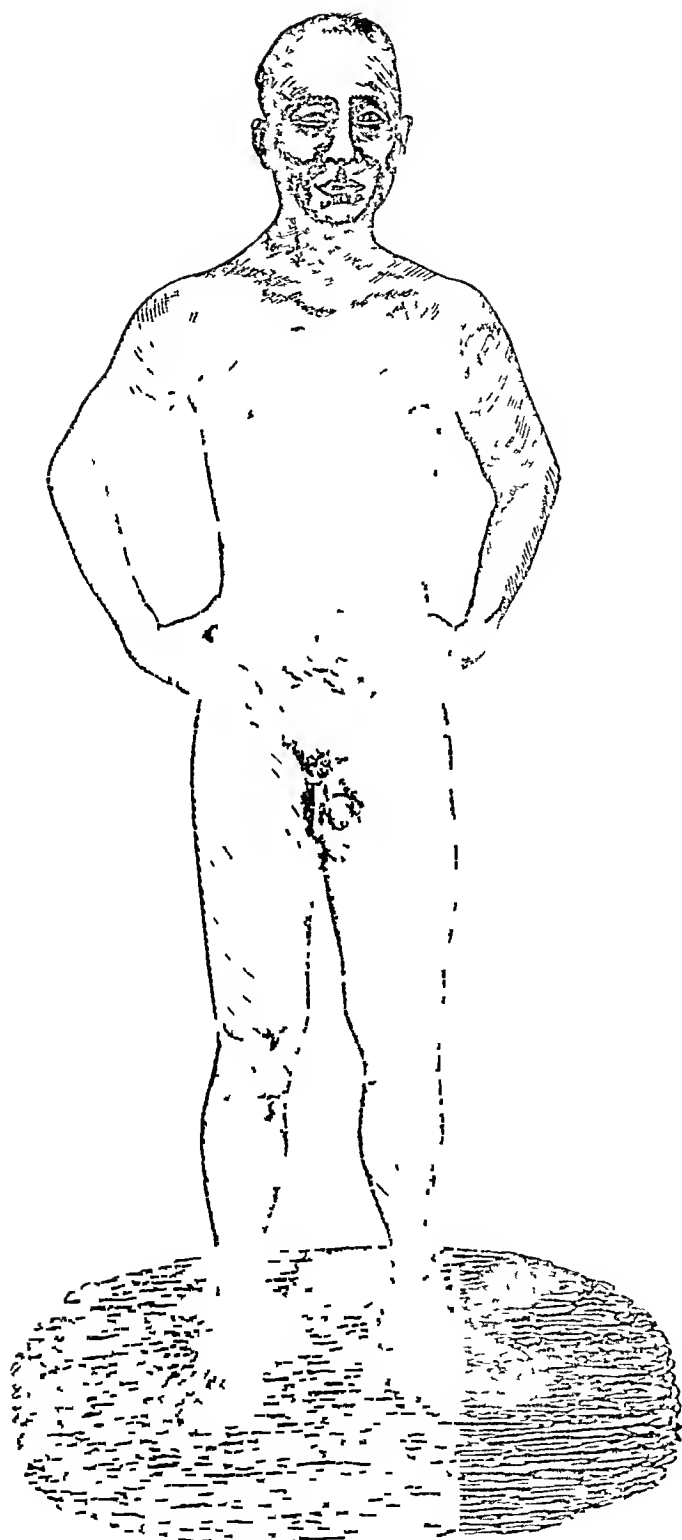


PLATE III (Fig 2)



PLATE IV



PLATE V

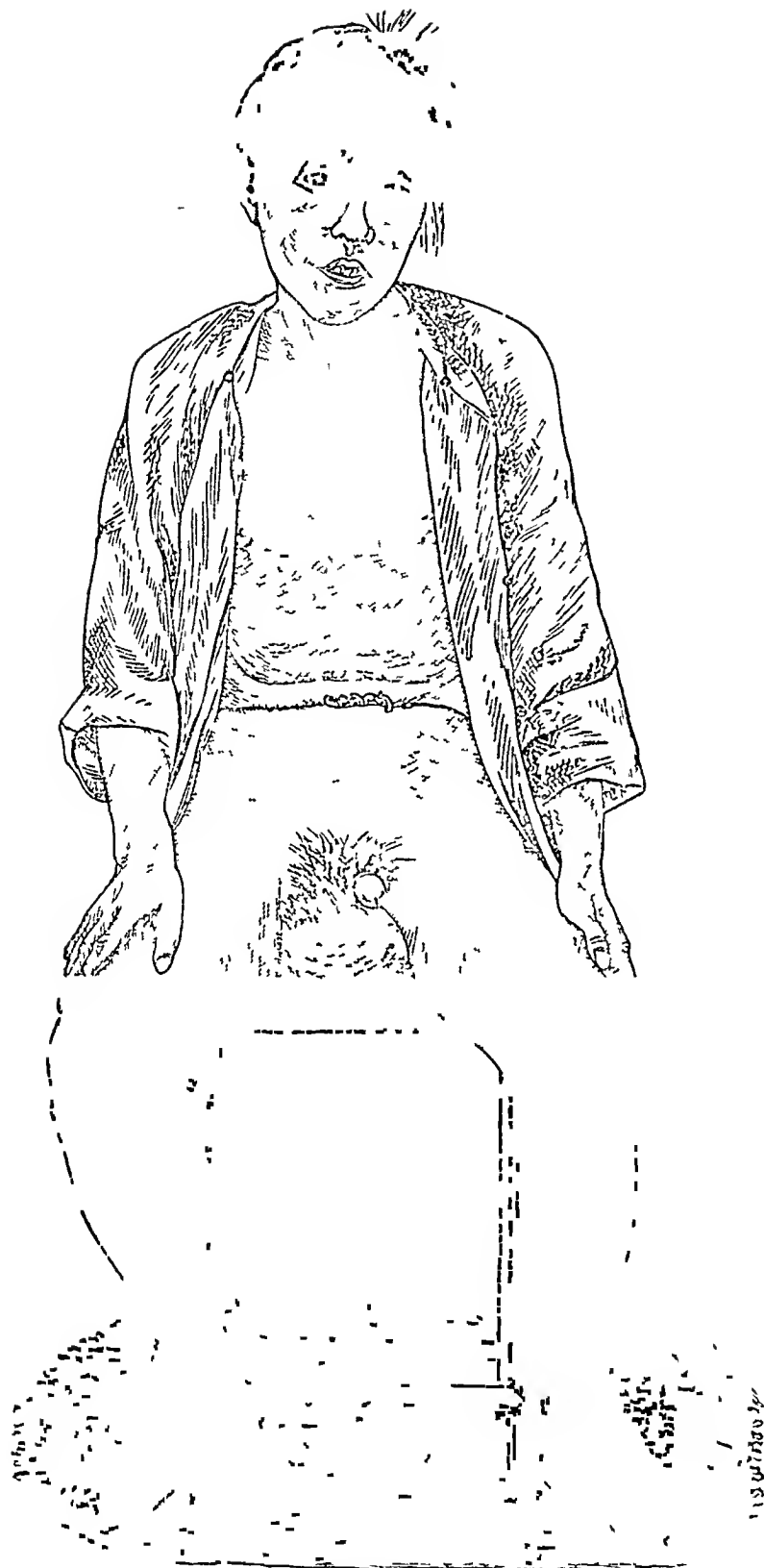


PLATE VI





CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1886.

32<sup>nd</sup> Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI YOKOHAMA, AND HONGKONG

LONDON P S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1886.





# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

*a*—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death.

*b*—Diseases prevalent at

*c*—General type of disease, peculiarities and complications encountered, special treatment demanded

*d*—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

*e*—Peculiar diseases, especially leprosy

*f*—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to DR ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3 —Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

4 —

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\*

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\*

\*

I am, etc ,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Talow,*  
*Kiukiang, Amoy,*  
*Chankiang, Swatow, and*  
*Shanghai, Canton*

---

SHANGHAI, *1st December 1886*

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Further Observations on *Filaria Sanguinis Hominis* in South Formosa, pp 1-38

Report on the Health of Takow and Taiwan-fu (Anping) for the two and a half years ended 30th September 1886, pp 39-49

Report on the Health of Amoy, pp 56, 57,

Report on the Health of Foochow, pp 59-67,

Report on the Health of Ningpo, pp 68-70, each of these referring to the year ended 30th September 1886

Report on the Health of Tamsui and Kelung, pp 50-55,

Report on the Health of Hoihow (Kiungchow), p 58,

Report on the Health of Shanghai, pp 71-75, each of these referring to the half-year ended 30th September 1886

An Appendix of Plates (with brief descriptive letterpress) illustrative of disease encountered among Chinese received into foreign hospitals in Shanghai, p 76

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
*PEKING*

---

The Contributors to this Volume are —

W W MYERS, M B, CH M	. .	Takow and Taiwan-fu
A RENNIE, M B, C M.	. .	Tamsui and Kelung
B S RINGER, M R C S, L S A		Amoy
J H LOWRY, L R C P E d, L R C S E d		Hoihow (Kunghow)
T RENNIE, M D, CH M	.	Foochow
C C DE BURGH DALY, M B, CH M		Ningpo
R A JAMIESON, M A, M D, M R C S	. .	Shanghai

---

## 'FURTHER OBSERVATIONS ON FILARIA SANGUINIS HOMINIS IN SOUTH FORMOSA

By W W MYERS, M B, Surgeon to the "David Manson Memorial" Hospital

DURING the four years that have elapsed since the publication of my last paper\* on this subject, I have from time to time been engaged in making the further observations which I now record, and, simultaneously, have lost no opportunity of reinvestigating those already communicated, aided in the latter by the criticisms my former paper elicited

I can only reaffirm my conviction as to the absence of the *filaria sanguinis hominis* from this island, and that this is in all probability attributable to the non-existence of a suitable intermediary host for the embryo

On several occasions supplies of mosquito larvæ were got over from Amoy, some of which came to maturity, thus enabling me in a few instances to watch the embryo *filaria* during one or two days of intra-mosquito existence, contrasting the inhospitality shown to the parasite by the native insects under observation at the same time

Incomplete as the experiments necessarily were by reason of the limited term of life vouchsafed to the mainland mosquito over here, still, for two or three days they afforded me an opportunity of again convincing myself of the accuracy of Dr MANSON'S observations and descriptions

Under ordinary circumstances I should have thought this reiteration unnecessary, but from a quotation given in Dr MANSON'S paper, read before the Linnæan Society,† Professor VON LEUCKART is reported by Herr SCHEUBE, of Leipsic, when lecturing on the blood *filaria*, to have written as follows —

MYERS wollte dessen Versuche auf Formosa, wo die Filariakrankheit selbst nicht autochthon vorkommt, nachmachen, kam aber zu dem Resultate, dass die Filaria-embryonen von den Muskitos vollständig verdaut wurden

From this it would seem that the distinguished writer has misunderstood my remarks, and has been led to believe the very opposite of that which it was my object to convey. Thus, though the absence of the *filaria sanguinis hominis* from South Formosa was recorded, still I suggested that the mosquitos found here differed from those found on the mainland, inasmuch as they "digested instead of nurturing" the filarial embryo. In support of this view the various attempts made to filariate monkeys were described, and their failure shown to depend on my inability to obtain a species of mosquito in the island capable of performing the part of intermediary host, or to preserve those imported from Amoy long enough to effect perfect maturity of the filarial embryo. It may be further mentioned that I happened to be in Amoy when Dr MANSON was collecting the specimens of mosquitos he afterwards forwarded to the late Dr COBBOLD, and which that eminent helminthologist used in London to demonstrate the

\* Customs Medical Reports, xxi, 1-25, and Transactions of the Epidemiological Society, London, 1881-82, 1, 126

† Transactions of the Linnæan Society, vol. ii, part x, 368

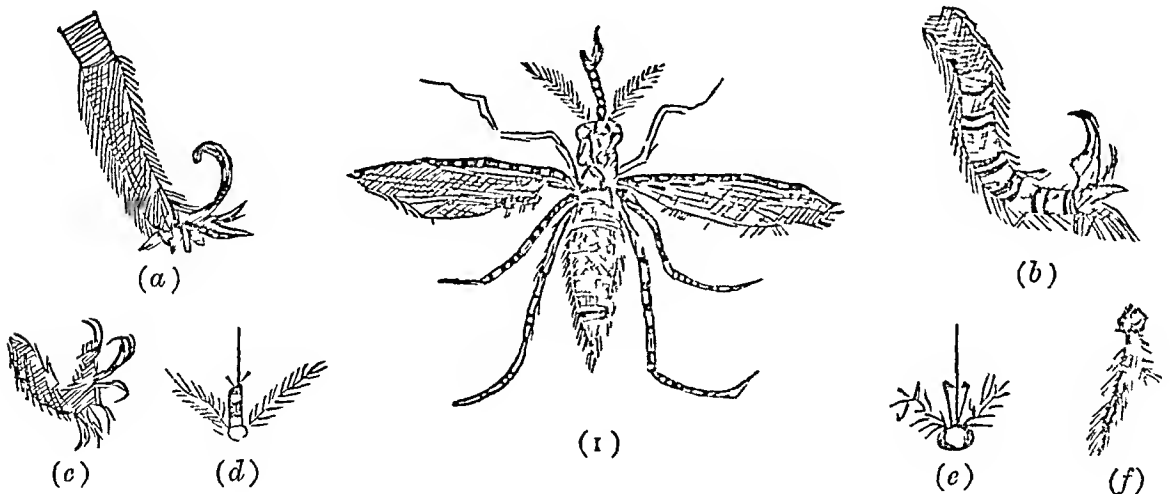
changes described by Dr MANSON as occurring in the filaria while in the mosquito, and I admit that on more than one occasion the daily metamorphoses were distinctly seen by me, and further, that I repeated the observations up to the third day in Formosa with mosquitos obtained from Amoy, and arrived at precisely similar conclusions

Further extensive and careful investigation here has failed to discover a mosquito like the Amoy filaria-nurturing variety, either in species or capacity for nursing the blood embryo

My searches have included many and distant regions of South Formosa, and to the kindly aid of the Rev DAVID SMITH, late of the English Presbyterian Mission, a no less constant than indefatigable traveller in the interior, I am indebted for specimens collected in various localities. This gentleman succeeded in obtaining one variety which differed from those commonly seen here, inasmuch as its body was perfectly diaphanous before feeding, and even after this operation had been completed the transparency was such as would have made it a splendid medium for observing *in situ* any changes going on within, had it been possible to bring live specimens thus far. I am not able, therefore, to say from personal observation of its habits that it is hostile to embryo development, though analogy, and the marked absence from the region it frequents, of filarially-infested persons or disease attributable to the parasite, tend strongly to suggest that it may also be assumed incapable of playing the part of nurse

I now proceed to give the measurements and description of the only varieties of mosquito I have been able to discover, striving by the accompanying sketches to facilitate reference and recognition. For comparative purposes similar descriptions and sketches of what I will call the true filaria-nurturing mosquito, as got from Amoy, are also given

(1) TAKOW COMMON (or "TIGER") MOSQUITO



- (1) Front leg has 3 joints  
 Middle " 2 "  
 Posterior " 5 "  
 Wings,  $\frac{1}{8}$  inch from base to tip, transparent, ribbed  
 (a) Middle leg,  $\frac{3}{8}$  inch  
 (b) Posterior leg

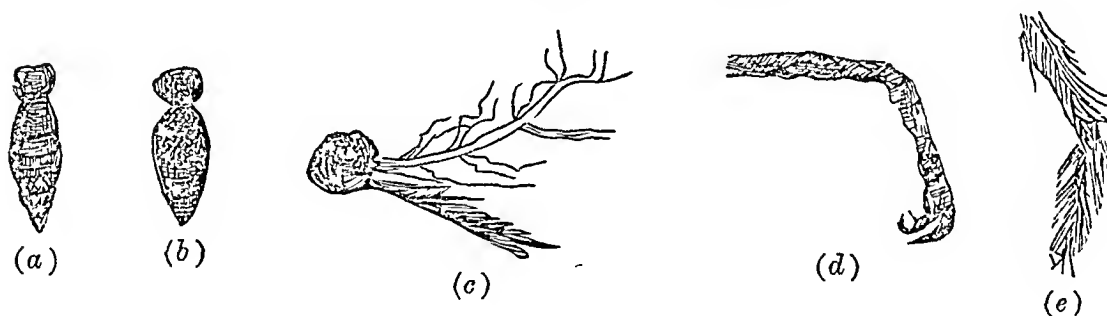
- (c) Terminal claw,  $\frac{3}{8}$  inch  
 (d) Proboscis (male), with winged palpi, plumose antennae  
 (e) Head and proboscis (female), pilose antennae  
 (f) Ligulets on proboscis, with hairs protruding at end

By far the commonest Formosan mosquito is the striped or tiger variety (1) The appearance to which its name is due is caused by a series of black and white stripes on the second and third pair of legs, thorax, and proboscis, while in further justification of the appellation, most formidable claws (*c*), or indeed talons, arm the extremities of the middle and posterior legs (*a* and *b*) At base of proboscis are a pair of palpi, with double antennæ, plumose in the male and pilose in the female (*d* and *e*), the proboscis (*f*), striped, of equal diameter throughout, with pointed extremity, through which several lancet-shaped spicules may be seen protruding Wings, dark, transparent, with delicate reticulated venation, to which are attached, generally on one side only, lanceolate appendages, or winglets, which also form a fringe on periphery

## MEASUREMENTS

Head and proboscis	$\frac{2}{96}$ inch	Legs — 1st pair, 3-jointed	
Proboscis alone	$\frac{6}{96}$ "	2nd " 2 "	$\frac{2}{96}$ inch
Wings	$\frac{10}{96}$ "	3rd " 5 "	$\frac{30}{96}$ "
Antennæ			$\frac{6}{96}$ inch

## (2) BROWN MOSQUITO found in TAKOW



- (a) Ventral aspect Thorax and abdomen,  $\frac{1}{16}$  inch long, head,  $\frac{2}{96}$  inch long  
 (b) Dorsal aspect Brown head and tip of abdomen, intervening part covered with black scales  
 (c) Head and proboscis with pilose antennæ, short, abrupt palp at base of proboscis Hairs on antennæ arranged in fours  
 (d) Posterior leg  
 (e) Middle leg

Another not uncommon variety may, on account of its colour, be at first sight mistaken for the filaria-nurturing species, but by closer investigation it can be easily distinguished This mosquito (2) is light brown all over save on the back, the central part of which is covered with dark scales (*b*), the posterior leg (*d*) has two short claws and is smoother than the middle one, which latter is without claws, though covered with rough hair-like processes (*e*) The proboscis (*c*) is distinctly hirsute from base to tip, of equal diameter throughout, tapering to a point at end At base of proboscis are two short, abrupt palpi and a pair of antennæ, having

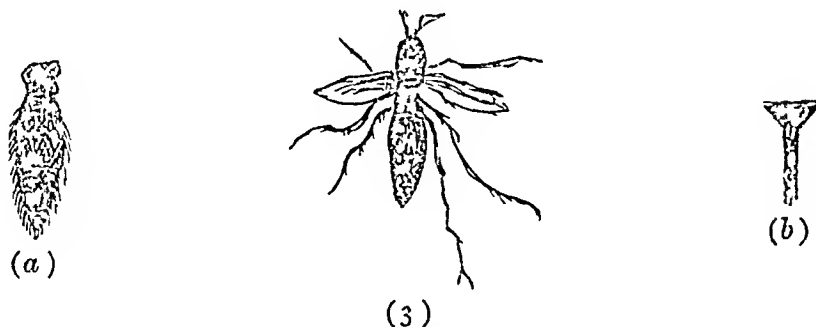


long hairs arranged in sets of four, at equal distances from each other      Wings similar to those of the "tiger" variety, though somewhat darker

The following measurements were taken —

Body (thorax and abdomen)	$\frac{1}{8}$ inch	Proboscis	$\frac{5}{16}$ inch
Head	$\frac{2}{8}$ "	Antennæ	$\frac{8}{8}$ "

### (3) EJECTING MOSQUITO



- (3) Brown body with black stripes on back, and six black spots on each side of brown abdomen  
 (a) Ventral aspect  
 (b) Head and proboscis

The third and last variety I have been able to differentiate is given more on account of its remarkable peculiarities than for anything else. This insect I call "Ejecting," from its habit of ejecting at its anal extremity the blood it draws in while feeding. Discharge and suction seem to go on simultaneously, for as soon as one drop falls off another commences to form, which in turn gives place to its successor. This process has been observed for five minutes consecutively, without any apparent increase of bulk in the mosquito. The blood is certainly changed during its passage through the alimentary canal, for the fluid discharged, though red in colour, is much more serous and does not clot. On microscopic examination the colour is seen to be due to disintegrated and shrunken corpuscles with some granular debris, probably also the remains of broken-down blood globules. This peculiarity would seem at once to stamp the insect as physically incapable of acting as filarial host, but may still be deemed of sufficient interest to render a more detailed description acceptable.

The whole insect (3) is brown, with black lines on back. On the belly (a) six black spots are symmetrically arranged on each side of median line. The proboscis (b) is marked, like that of the "tiger" variety, with three broad bands, two black, at base and tip respectively, and an intervening uncoloured one, it is smooth and of equal calibre throughout, with two long straight antennæ. The anterior leg has three joints, the middle leg has four joints, the posterior leg has five joints.

### MEASUREMENTS

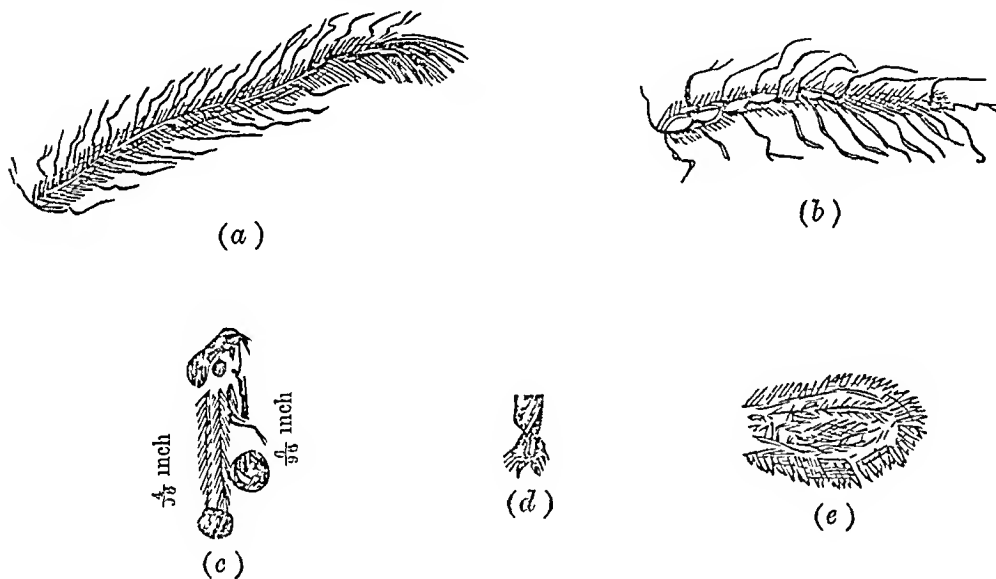
Body	$\frac{1}{8}$ inch	Head	$\frac{2}{8}$ inch
Thorax	$\frac{1}{8}$ "	Proboscis	$\frac{7}{8}$ "
Abdomen	$\frac{1}{8}$ "		

I may add that this mosquito is not very common, and seems to be confined to a limited area in Takow. The foregoing are all the varieties I have been able to distinguish as yet in South Formosa.

These descriptions are by no means complete, but as the distinctions given are well marked and offer readily recognisable points of difference, they may serve as incentives to further and more minute examination which others, resident in places where the filaria-nurse insect is found, may be prompted to undertake.

The following is the result of repeated examinations of the filarial mosquito obtained from Amoy, and may prove useful in suggesting a more minute and detailed description by those possessing greater facilities for investigation —

#### (4) FILARIA-NURTURING MOSQUITO from AMOY



(a) Long antenna

(b) Short antenna

(c) Head and proboscis, with single palp

(d) Tip of proboscis, showing bulbous extremity

(e) Wing

A dark brown body, smaller than that of any variety I have found here. Posterior leg covered with delicate, leaf-like appendages, no claws. At base of proboscis (c) are two antennæ (a and b), beaded, with filamentary processes coming off at each joint, one shorter than the other, the bead-like joints of former (a) larger than those of latter (b), while at each constriction there are only two filaments, one on each side, short, abrupt palpi. The proboscis terminates in a *cone-like bulb* (d), markedly differentiating the insect from those previously described. Wings (e), ribbed, covered with obtuse, leaf-like appendages arranged featherwise on each rib and round the periphery.

The following are the measurements taken —

Head	$\frac{2}{5}$ inch	Long posterior leg	$\frac{22}{5}$ inch
Proboscis	$\frac{4}{5}$ "	" antenna	$\frac{6}{5}$ "
Wings (from base to tip)	$\frac{8}{5}$ "	Short "	$\frac{6}{5}$ "

Annexed is a table of comparative measurements, got from the South Formosan varieties and the Amoy filarial mosquito, showing the parts distinctly different in each species

COMPARATIVE MEASUREMENTS of SOUTH FORMOSAN MOSQUITOS and of FILARIA-NURTURING INSECT from AMOY

PARTS	SOUTH FORMOSAN			AMOY
	"Tiger" Mosquito	"Brown" Mosquito	"Ejecting" Mosquito	Filarial Mosquito
	<i>Inch</i>	<i>Inch</i>	<i>Inch</i>	<i>Inch</i>
Head and proboscis	$\frac{8}{5}$			$\frac{6}{5}$
Head	$\frac{2}{5}$	$\frac{2}{5}$	$\frac{2}{5}$	$\frac{2}{5}$
Proboscis	$\frac{6}{5}$	$\frac{5}{5}$	$\frac{7}{5}$	$\frac{4}{5}$
First pair of legs				
Second "	$\frac{22}{5}$			
Third "	$\frac{22}{5}$			$\frac{22}{5}$
Antennæ	$\frac{6}{5}$	$\frac{8}{5}$		{ long $\frac{8}{5}$ short $\frac{6}{5}$
Wings	$\frac{12}{5}$			$\frac{8}{5}$
Body		{ (thorax & abdomen) $\frac{12}{5}$ }	$\frac{12}{5}$ (whole)	
Thorax			$\frac{3}{5}$	
Abdomen			$\frac{14}{5}$	

From these and other observations I feel justified in reasserting that the filarial mosquito, or at least that species which acts as such on the mainland, is absent from the south part of this island, while, judging from the absence of filarial disease all over Formosa, it is almost certain that this essential intermediary, for some reason as yet unknown, cannot or does not exist at all in the island. People are constantly coming and going from Amoy, water tanks arrive every day, but still the closest search has failed to discover a trace of the Amoy insect anywhere in the southern half of Formosa.

I also arrange descriptions of the four varieties of mosquito in parallel columns to further facilitate comparison —

SOUTH FORMOSAN VARIETIES			AMOI SPECIES
"Tiger" Mosquito	"Brown" Mosquito	"Ejecting" Mosquito	Filarii-nurturing Mosquito
Striped black and white on body, proboscis, 2nd and 3rd pair of legs	Light brown body and head, back covered with dark scales	Brown body, with black lines on back, and black spots on belly symmetrically arranged on each side of median line	Dark brown body, generally smaller than other varieties
Middle and posterior legs with claws	Posterior leg with two short claws, middle, hirsute		Legs unclawed, covered with obtuse, leaf-like appendages similar to those on wings
Proboscis of equal calibre throughout	Proboscis of equal calibre throughout	Proboscis straight and of equal calibre, black and white stripes on bands	Proboscis terminates in cone-like bulb
Two palpi	Two short, abrupt palpi	Short palpi	
Two antennæ, plumose or pilose	Two antennæ, with filamentary processes arranged in fours	Two long, straight, naked antennæ	Two antennæ of different lengths, beaded or distinctly jointed, pilose—the longer with single long filaments springing from each constriction at joints, shorter, with longer joints than its fellow
Wings clear, transparent, ribbed, with lanceolate winglets or appendages attached to ribs and round periphery	Dusky wings, ribbed, with few winglets or appendages attached to ribs and round periphery		Wings ribbed, with delicate leaflets arranged featherwise on each side of ribs, and fringing periphery

Before going on to describe the further investigations made to discover the ultimate destination of embryo filariæ remaining in the blood of the human host, it may be as well here to notice the leading objections raised by those who criticised my last paper

Dr MANSON, and to some extent Dr COBBOLD, thought the great difficulty in accepting my views was that they seemed to suggest periodic or intermittent reproduction on the part of the parent worm, and indeed the former made this almost his sole ground of dissent

Assuredly, if we take it for granted that all the embryos in the body during the hours they appear in the blood are contained in the vascular system, then if these are destroyed their place can only be filled by a new swarm, but knowing as I did, what Dr MANSON also calls attention to, that in cases of chyluria and lymph scrotum a continuous outcome of embryos is kept up during the whole day, I did not intend it to be understood that the

supply was intermittent or absorbed as soon as provided. I did not discuss this part of the subject at length because more occupied with the question as to whether the embryos in the blood died there or betook themselves to some resting place. From what I state hereafter, however, it will be seen that the suggestions I then offered and those I now present as to filarial reproduction and existence in the body of the primary host are not inconsistent with each other, and that neither intermission of production nor improbable enormity of swarm is essential to the views put forth. I was not fortunate enough to obtain Dr MANSON'S corroboration of my experiments as to the longevity and vitality of the embryo at the different hours of its existence in the blood, but I was much gratified to find that Dr STEPHEN MACKENZIE, in his kindly review of my paper,\* stated that he had repeated my experiments and was able to confirm them. From this and the fact of three other observers (two of them medical men) having checked my observations on the spot and agreed with me, I may hope that some accidental circumstance interfered with the observations made by Dr MANSON, and perhaps prevented his arriving at similar results to those got in London and Formosa.

Having verified as far as possible the experiments and observations previously detailed, I have devoted most of my efforts towards determining the question left unsettled as to the ultimate destination of the filariæ not abstracted by the mosquito.

In considering at the offset the data we have to work on, there is one fact which seems to me to stand forth very prominently, but which has not, so far as I know, been dwelt on to the extent its value as a preliminary factor in clearing the way for further investigation seems to warrant. I allude to the absolute need there seems to be for the regular and periodical removal of certain numbers of the embryos, so as to make room for those constantly coming into existence, and which must in turn have their chance of mosquito deliverance. In other words, it seems very certain that the unremoved filariæ must go somewhere whence their return to the blood is impossible. Assuming that parturition in the parent is continual, at the lowest estimate a single worm should produce about 2,000,000 embryos in the 24 hours, for Dr MANSON tells us that the minute filaria coivi torquati was seen to give birth to "20 or 30 embryos" every few seconds†. If we suppose this number to be brought forth each three seconds, we should obtain a total of 864,000 in the 24 hours, or, say, in round numbers, 1,000,000.

In estimating the number of filariæ present at one time in the blood of a man, the difficulties are very great, and indeed only an approximate result can be hoped for. To arrive at this, let us assume an adult weighing, say, 12 stone, and therefore possessing about 15 lb of blood, let us suppose the amount that goes on a slide to be about a minim, and that the total quantity of blood in his body would be about 115,200 minims. With a view to getting some idea of the number of filariæ on a slide, *re*, in a minim of blood, I have gone over the records of filarial finds at different hours and for several days. Taking the days and hours when the maximum and minimum number of embryos were present, and striking an average, I have been able to arrange a series of 100 records, covering several days for each individual.

\* *London Medical Record*, 1882, 5

† *Customs Medical Reports*, xxiii, 13

I should mention that I have utilised the Customs *Medical Reports* and other publications for this purpose. From these the average number of filariæ found in one minim was 13. On this basis there would be 1,497,600 filariæ present in the whole vascular system, or say 1,500,000. Now, if the calculation as to the daily produce of the minute *filaria corvi torquati* be tolerably near the mark, it will not be over-estimating the capacity of the *filaria sanguinis hominis* to assume the daily produce as being close on 2,000,000. Dr MANSON calculates the number of filariæ present at one time in an infested man at "more than 2,000,000,"\* but does not say how he comes at this result. For my present purpose I propose taking the figures I have given. By the calculation, then, the parent worm would produce about 500,000 more filariæ each day than appear in the blood.

Further on, when I submit my views as to the phases of existence passed through by the embryos in the human body, I will offer suggestions as to why this is and how it accords with the requirements of the parasite and the adjustments of nature.

Even supposing exactly the same number were produced as are seen in the circulation, and that the new swarm only entered the blood every 12 hours, it is obvious that at this rate, unless a very considerable outlet were provided, a block must soon ensue. It is clear that even under the most favourable circumstances mosquito aid would be comparatively useless, then what becomes of the unrescued residuum? It is highly improbable the embryos can re-enter the lymphatic system—the valvular folds at the entrance of the thoracic duct would bar retreat by that opening, to say nothing of other forces hostile to such an attempt, nor does it seem probable that, like the white corpuscles, they can make their way through the capillary walls. Even if they could, however, the evils of constant advent, with no relieving means of withdrawal, would be just as conspicuous and urgent. They do not rest in the organs, as Dr MANSON at first thought might be the case, for he tells us† that in filarious patients blood aspirated from the spleen and that coughed up during the day contained no filariæ.

I am also in a position to affirm the same of splenic blood, with the addition of like negative results obtained from several liver aspirations. But even in the absence of these proofs by exclusion, it seems to me that anything short of complete removal from the economy, giving space to the crowds fast collecting must be inadequate, and therefore that all suggestions involving accumulation, such as temporary stay in this or that place, must be put aside as inapplicable to the obvious requirements of the case. My observations—and I have tried to devise special experiments for the purpose—tend to make me question very much whether the embryo has any inherent power of locomotion. No doubt there is very vigorous action, but this seems to be all directed towards the centre of the circle formed by the parasite, and although I have placed it in positions favourable to freedom of motion, such as between comparatively separated glasses, adding fluid of serum density so as to cause the blood corpuscles to run about freely, the embryo losing none of its vigour but stretching itself out at times as though to attach red globules, I could not detect the slightest onward progress. I have put the blood in glass capillary tubes, where one would expect locomotive powers to show

\* Customs *Medical Reports*, xv, 9† *Ibid*, xiii, 8

themselves if present, but such has not been the case, and I have seen the same creature on the field of my microscope, when making observations on the solution question, for days, including the time when its full vigour ought to have enabled it to move if at any time competent to do so. In fact, the earliest occasion on which I have seen the embryo spontaneously moving was after 24 hours' stay in the mosquito and subsequent to shedding its integument. In the human blood-vessels I believe it is helplessly borne along by the force of the current, and this, if it is as I suspect, has an important bearing on any question dependent on the autonomous movements of the embryo after it has got into the vascular system. That it has some slight holding power I think is obvious, and I have tested this by means of currents of different strengths. Indeed, from what I saw I do not doubt that in the slowly flowing lymph current it could easily control progress, though I think not aid it, but the blood-flow certainly seems quite beyond all its powers of resistance.

Granting that the liquor sanguinis is capable of dissolving the dead filarial embryo, and holding that those parasites not extracted by the mosquito during the night die, and so make room for their successors of the following evening, the question still remains—what is it that brings about this mortality? As Dr MANSON pointed out, it is not something connected with the mere state of rest or wakefulness, as for several hours before the host goes to sleep the embryos are disposing themselves in his blood. The attraction must therefore exist in peculiar conditions of that fluid at these times, and disappearance or death must be consequent on the hæmic state during the period of embryo absence.

Dr MANSON suggested one or two theories, such as diurnal magnetic influences, barometrical pressure, variations in temperature, etc., and made several experiments and observations to test these suppositions, with the result that he felt constrained to abandon his surmises. Dr MORTIMER GRANVILLE seems to me to have struck the keynote at once when he pointed out, on hearing of Dr MANSON's discovery as to the periodicity of filarial presence in the blood, the probability of this being due to physical changes and conditions peculiar to each period. Following and supporting this conjecture came Dr STEPHEN MACKENZIE's brilliant and ingenious experiment, whereby he proved that reversing the hours of sleep also altered those of embryonic advent to the circulation. With a wisdom that follows "a prompt," we see this change to be nothing more than must necessarily have taken place, as the subject of Dr MACKENZIE's observations travelled from India to London. To illustrate what I mean I have drawn up the following table, showing the various alterations in time at different points of call on the journey home and consequently in the hours of filarial movements. Taking the difference in time between Greenwich and the chief places of each Indian presidency, I find this to be as follows —

	H	M	S
Caleutta	5	53	20
Bombay	4	51	12
Madras	5	20	59

The mean difference between the Indian shores and London would be about 5 hours, 21 minutes and 50 seconds. In ignorance of the actual port of embarkation selected by the

patient, I have to adopt this approximate method, which, moreover, will serve our present purpose equally well. The table shows the various changes undergone —

TABLE showing VARIATIONS in TIME of FILARIAL APPEARANCE on a VOYAGE from INDIA to LONDON

Difference of time between Greenwich and—

	H	M	S
The port of embarkation in India	5	21	50
Colombo	5	19	23
Aden	3	0	10
Port Said	2	9	17
Gibraltar	0	21	24

Supposing filariæ appeared in blood at 7 P.M. mean time in India, this hour corresponds to mean time at—

	H	M	S
Colombo	6	57	33 P.M.
Aden	4	38	20 „
Port Said	3	47	27 „
Gibraltar	1	59	34 „
London	1	38	10 „

Reckoning by Indian mean time, therefore, the filariæ postpone their appearance at—

	H	M	S
Colombo	for 0	2	27
Aden	„ 2	21	40
Port Said	„ 3	12	33
Gibraltar	„ 5	0	26
London	„ 5	21	50

To make this plainer, let us imagine that a filarious Fijian from Voona Point, Favuni, one of the Fiji group and situated in longitude  $170^{\circ} 56' W$ , makes a voyage to London, he will on arrival have exactly accomplished what Dr MACKENZIE did in the hospital wards, that is to say, the hours his blood contains embryos in England are exactly the opposite of those during which the parasites were present in his circulation while at Favuni. But neither Dr MACKENZIE's experiment nor the geographical exemplification of it he has taught us to deduce owes its present chief interest to the mere curiosity of the facts disclosed. By his ingenious idea, we are put in possession of one of the most important clues towards the solution of the ultimate destination problem that has been gained since MANSON made his mosquito nurture and periodicity observations. I say this advisedly, for we are now in a position to go a step farther than Dr MORTIMER GRANVILLE in assuming the influences so strangely affecting the embryos to be regular and physiological ones, intimately connected with the systemic routine. By following out the hint thus given us, we may find some other and more familiar



phenomena which owe their existence to similar causes, and these traced out may perchance lead us to the solution desired

In the regular and periodical variations of bodily temperature it would seem that we have an analogous or somewhat approximate phenomenon. No doubt the same variations take place in travelling from one part of the world to another, and what is a fixed morning and evening record in one latitude becomes quite changed with locality and other coincident circumstances

In passing I might here suggest to medical officers, whether naval or commercial, that on their various voyages careful registers of bodily temperature curves, as the ship changed her position day by day, would be highly interesting and might be productive of considerable results

We are certainly in possession of the physical causes affecting bodily temperature, and although thermic variations themselves have little or no effect on the embryo periodicity with which they are coincident, still it appeared to me that some of the chief causes influencing animal heat may not improbably be those that act on filial wanderings. Carrying out this idea and utilising Dr MACKENZIE'S discovery, I have adopted that gentleman's method of turning night into day, with a view to seeing the effect this would have on the usual temperature record. No doubt the following tables and charts only depict what geographical observations must have frequently shown, but for the purposes at present interesting us I have thought it best to make confirmatory experiments

Finding it difficult, if not impossible, to get adult native subjects to submit to the restraint and monotony entailed by the necessities of this experiment, I should have had to give up all idea of carrying out my project but for the zeal and willingness of my two little daughters, aged 11 and 12 years respectively. Being able to rely both on their intelligence and *bona fides*, I was glad to avail myself of their volunteered aid, and on the 4th January of this year the observations commenced, extending over 24 days, during the whole of which time the young people stuck loyally and steadfastly to their undertaking. The mean temperature of the air was about 60° F

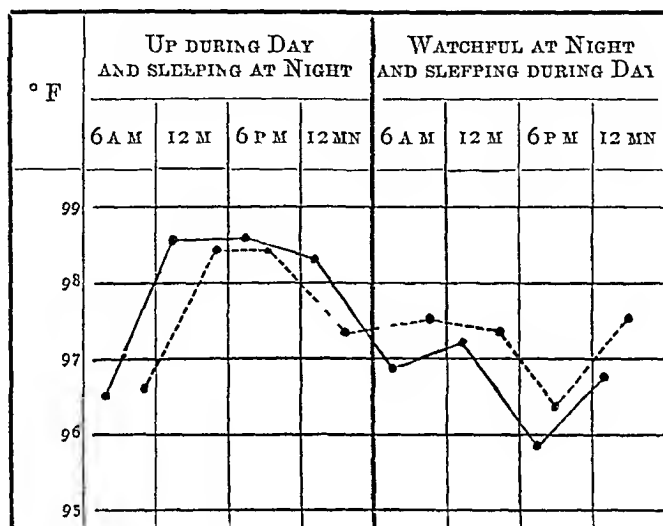
On referring to Tables Nos 1 and 2 it will be seen that as soon as nocturnal wakefulness began the relative heights of the morning and evening records were reversed, as were those for other hours, thus the morning became the highest for the period and the evening the lowest. The table of means shows this best. While the children were keeping up at night the average nocturnal readings were much lower than those to which they were supposed to be analogous, but against this we may perhaps set the production of carbonic acid during the night as compared with that produced during daylight, being in the proportion of one during night to one and a quarter during the day, and this is said to be quite irrespective of sleep or wakefulness





TABLE No 5 —CHART showing MEAN TEMPERATURES for a Period of 24 Days, from H M and A M, at 12 and 11 Years respectively, also reversal of Morning and Evening Records with Change of Habits

(H M's curve, ———, A M's curve, - - - -)



Accepting this as evidence of so much heat generated, we may expect to find the nocturnal manifestation of the latter lower by just that proportion of constant difference, even though other circumstances were artificially assimilated to those of diurnal occurrence. This does not account, however, for some extremely low indications given by night and day, and especially during the latter time, in both children. Thus with H M 96° was registered during the daytime, and with A M 96° 20. In H M's record we also find 96° 40, 96° 80, and in A M's the same. On the day the habit was changed, during which they slept as much as possible, H M's lowest record was 95° 20 and A M's 95° 80. In the nights, while wakeful, H M and A M's lowest was 94° 40 on the same night and at the same hour—17th day. H M during this time also recorded 95° twice, 95° 20 three times, 95° 60, 95° 80 twice, and A M 95° 40, 95° 60 twice, besides other abnormally low readings. On the day of change to the normal routine, A M's lowest was 94° 60, H M's, 94° 20.

On getting back to night rest H M had 94° 20 once and 94° 80 twice, besides 95° 20 and 95° 60, 96° 20 at other times. A M's lowest was 94° 40, then 94° 80, 95° 40 twice, 95° 20 three times and 95° 60 at other times.

These low temperatures no less surprised than alarmed me at first, but I could detect nothing to warrant anxiety. The children are strong, well-developed and well-nourished. They appeared then to be and have since been in perfect health, eat well, are active and lively, and complained of no subjective sensations in keeping with the mercurial indications.

On every occasion these observations were taken with three different instruments, one of which had the Kew correction.

Dr AITKEN\* states that Mr JAMES P CASSELS of Glasgow was much struck while using the thermometer on children completely recovered from measles by the low records he got, and in a table of temperatures taken from a child 16½ months old "*when asleep and every source of error carefully avoided,*" he shows results "*below those of adult life*" He took six records as follows "96° 2 F, 96° 4 F, 96° 4 F, 97° 2 F, 97° 6 F, 97° 4 F"

I have a strong impression of having noticed in some of the medical publications communications calling attention to this peculiarity in children, but cannot at the moment recall when or where, at any rate, it is a fact well worth bearing in mind, and may save much of the anxiety likely to arise if only discovered at the bedside by one unprepared for such results

Now looking to our immediate object, we know that the variations in temperature are primarily due to chemical changes going on in the body, and may be at present considered only in so far as these concern the access of oxygen and production or exhalation of carbonic acid These, at any rate, are undoubtedly the chief differences found between the conditions of the blood at the two periods under review

Turning to the embryo filaria we find that an anxiety to possess itself of oxygen seems to be a very conspicuous and constant trait in its disposition Thus it will be remembered that on the slide, if the animal happens to get washed away from the bulk of the red corpuscles, it becomes most restless, at once stretching out its body as though seeking for something, on coming in contact with the globules, it eagerly embraces them, rolling these over and around its body, and if washed back to the general mass these motions continue for some time After a little, however, as if it had recovered some of the vitality lost during removal from corpuscular contact, it resumes its vigorous movements and the semi-oval form that seems to be its normal and healthy position Again, the embryo leaves the human circulation and enters the mosquito prior to the blood of its primary host undergoing the changes which, it is suggested, bring about its death Now in the mosquito the condition certainly changes, but in a direction apparently favourable to development, and which the instinctive desire of the parasite seems to indicate,—that is, the continued and regular supply of oxygen is secured Thus, we may put it, the embryo having stayed as long as is compatible with its safety and comfort in the human host, changes its abode for one where these essentials approximate to, or exceed, those present in man's blood during the night

Even here, it would seem, the embryos manifest an elective ability, selecting a position where the most oxygen is available and where there is less exposure to the products of oxidation, for, as LEWIS has pointed out, the imbibed filariæ soon emigrate from the abdomen of the mosquito to its thorax Dr MANSON fully confirms this statement

Considering the circulatory structure of insects, we find that the dorsal vessel or rudimentary heart discharges its contents into the neighbourhood of the head, and so those filariæ situated high up in the body are being constantly bathed by a fluid richly charged with oxygen True, if lying in the abdominal cavity they are not deprived of this gas, for the tracheæ or spiracles would no doubt keep them more or less supplied, but, for obvious

reasons, the conditions of the thoracic position are superior, and calculated to afford all that is required for sustenance and development in more concentrated and convenient form. At least this seems to me a probable explanation of this selective tendency in the parasite, while I think it proves the constant need for and seeking after oxygen, a point more specially under notice at present. I take the following from CARPENTER'S *Physiology*, 7th edition, page 343, where, referring to the varying amounts of carbonic acid exhaled during day and night, he says —

*Sleep or Watchfulness* — The amount of carbonic acid exhaled during sleep is considerably less than that set free in the waking state. This is particularly shown by the experiments of SCHARLING. Thus in one case the hourly exhalation sank from 160 to 100, and in another from 194.7 to 122.3

On page 344 —

From the experiments of SCHARLING on the human subject it would appear that the average proportion exhaled by day to that exhaled by night is as  $1\frac{1}{4}$  to 1, and this difference does not seem to be affected by sleep or wakefulness. There was the least during the middle hours of the night, a slight increase with sunlight, a large increase after the meals, and a decrease before them, and a prolonged and inevitable fall after about 9 o'clock P.M.

Compare this with the periods of filarial appearances in varying numbers and their withdrawal, when a very striking relationship seems indicated. On page 345 the author gives the result of PETTENKOFER and VOIT'S experiments on a healthy man, in the following table —

PERIOD	ELIMINATION THROUGH SKIN AND LUNGS OF		Amount of Oxygen absorbed	Percentage of the inspired Oxygen in the Carbonic Acid
	CO <sub>2</sub>	H <sub>2</sub> O		
	<i>Grammes</i>	<i>Grammes</i>		
Day (6 A.M. to 6 P.M.)	532.9	344.4	234.6	175
Night (6 P.M. to 6 A.M.)	378.6	483.8	474.3	58
TOTAL IN 24 HOURS	911.5	828.2	708.9	94
A few days later the same man worked till exhausted				
Day	884.6	1,094.8	294.8	218
Night	399.6	947.3	659.7	44
TOTAL	1,284.2	2,042.1	954.5	98

He goes on to say, page 346 —

The table shows a remarkable excess of the diurnal against the nocturnal elimination of carbonic acid, especially after work, and a corresponding increase in the percentage of the absorbed oxygen which is thus discharged.

It is to be noted at present, therefore, that according to these authorities the amount of absorbed oxygen discharged during the night is as 58 to 175 of that eliminated as carbonic acid in the day for a man undergoing ordinary labour, while for the same man working hard, as most Asiatics do, the proportion is as 44 to 218. Allowing for the amount combining with hydrogen, the blood must still be markedly richer in free oxygen at night than during the day.

On page 223 (*op cit*) it is stated that SCZELKOW and BERNARD found that venous blood, returning from muscles at rest, contained on the average 671 per cent *more* carbonic acid and 9 per cent *less* oxygen than arterial blood, while from muscles in action the excess of carbonic acid was 1079 per cent, and the deficit of oxygen 12 to 16 per cent in venous blood, as compared with arterial. Considering these facts, it seemed to me possible that the embryos were killed by carbonic acid either acting as a direct poison, or, by excluding oxygen, bringing about the same result indirectly. To decide this question I naturally made observations on the effect produced by the direct application of carbonic acid to the blood, and in order to get a sufficient supply of the latter the median basilic vein was punctured. I was at once struck with the marked difference in vigour and vitality shown by the embryos in this blood as compared with those in a drop extracted from the finger at the same time by the ordinary method. Proceeding to test the longevity of the filariæ in each specimen of blood, two thoroughly oiled slides were rapidly applied to the puncture in the vein, so as to avoid as far as possible oxygenation taking place, and the cover quickly slipped on. These precautions were deemed advisable, as I observed that if the drop of venous blood was exposed for a little time to air the filariæ distinctly became brisker and exhibited something of their normal activity, though still comparing unfavourably with their fellows taken from the capillaries. The following are notes of the results obtained in January 1884 —

EXPERIMENT 1 — *Drop of Blood from Median Basilic Vein, Eight Embryos on Slide* — Marked difference in vigour from those in blood drawn by prick from finger, all more or less feeble and stretched out. By the third day none were to be seen on slide, this being a somewhat quicker result than was got with the filariæ withdrawn from arterial circulation in the morning\*. Those extracted in the usual way, from the finger, besides being much brisker from the first and preserving their vitality much longer, had not all disappeared from the slide until the morning of the ninth day.

EXPERIMENT 2 — Three ordinary soda-water bottles were taken, and about 1 oz of venous blood allowed to flow into each.

Taking the mean of five slides also charged with some of this blood, I calculated that each minim contained about six filariæ, which would give for the whole quantity 8,640. Prior to covering the slides the drop was freely exposed to the air, with the effect of considerably reviving the otherwise debilitated embryos. These were put aside and examined daily, and by the fourth day all the filariæ on the different slides had disappeared.

To return to the bottles. No 1 was placed under the gas pump, and well-washed carbonic acid was forced in at the ordinary pressure used for soda-water, viz, 8 atmospheres. No 2 was similarly treated, save that the gas had a pressure of only 5 atmospheres, and with No 3 the gas was merely allowed to flow in at a pressure of about 5 lb on the square inch. This of course immediately produced on the blood the usual effects of contact with carbonic acid. The bottles were securely corked in the ordinary way by the machine and put aside for 12 hours. On opening the first and second, though several slides were examined from each, and the blood taken at different depths, I was only able to discover on one slide from No 1 bottle the remains of three filariæ, from No 2 I found two dead embryos on one slide and some remains on the others, with No 3 I got, on one slide, five very feeble filariæ, on another three, and on a third four and remains of two others.

We must discard Nos 1 and 2, as probably the great pressure at which the gas was forced in took the chief part in causing the death of the parasites, though I am of opinion that the carbonic

\* See former paper, *Customs Medical Reports*, 1881, 17

acid certainly hastened the solution, with No 3 it is quite possible that the carbonic acid may have brought about the result, but I could not form any decided opinion from even this experiment as to whether the carbonic acid acted as a poison or merely destroyed life by the exclusion of oxygen

As may be supposed, I had considerable difficulty in persuading To AH to submit to an operation that appeared so formidable to one of a race who gauge the severity of all injuries by the amount of blood-flow. By dint of ample reward, however, and assurances that I had taken every means to convince myself of the harmlessness of the procedure, I got him for this occasion only to submit as I have described. This occurred 18 months ago, and I may mention that he is in perfect health, allowing me at intervals to tap his finger by needle-prick, still even for this he is by no means so complaisant as formerly.

I mention this so that the experiments, unrepeatable as they were, may be taken for what they are worth, and indeed all through, the fact of being so heavily handicapped by being confined to one individual, the embryos in whom were palpably getting less numerous, renders all that I have done, of late years at least, and which are dependent on observations made with a solitary case, only valuable so far as what they seem to foreshadow may be borne out by investigations which must be much more extensive and searching before that scientific accuracy can be arrived at so essential to the deduction of positive conclusions.

The following appears to lend some support to the idea that in the presence of an excessive supply of oxygen the embryos are more indifferent to the action of carbonic acid —

EXPERIMENT 3 — Through a drop of blood on a slide I passed a continuous current of carbonic acid for some considerable time. The cover glass was then put on and the slide preserved in the usual way. I was not able to convince myself that the embryos were materially affected either during the time the gas was playing on them, or afterwards as to their longevity. I should state that the blood so acted on was arterial, and obtained from the cutaneous capillaries by acupuncture.

EXPERIMENT 4 — I next tried the effect of keeping the slides in an atmosphere of oxygen, and so marked was the effect apparent on the activity of the embryos and their longevity, increasing thus  $2\frac{1}{2}$  days beyond that previously observed, that I was led to attempt, by the following method, to see whether development could be artificially induced. Taking two test tubes sufficiently wide to admit slides narrowed for the purpose and charged with To AH's uterine blood, I connected them by tubes with a pipe leading from the oxygen receiver. Turning on the tap, both test tubes were thus kept constantly filled with oxygen. I then placed them under a sitting hen. One test tube was reserved for occasional examination, a small tap being fitted to the tube by which it was connected with the main gas pipe, hoping that if any results showed themselves I might, after a suitable interval, be able to get these more matured in the unopened tube. At the first examination, however, I discovered that coagulation had proceeded to an extent incompatible with the existence of the filariæ, at least I thought to this was due the disaster which seemed general. No doubt the continued high temperature under the hen conducted to the speedy formation of clots.

In reference to this it is very necessary, in making experiments as to the longevity of the embryos and their solubility in the liquor sanguinis, as I pointed out in my former paper when referring to these, that both slide and cover-glass should be carefully oiled for about  $\frac{1}{4}$  inch round the edge of the latter, when it will be found that this not only prevents desiccation but also seems to arrest coagulation. If unoiled slides are used, evaporation takes place very rapidly, clot forms, and the embryos, however vigorous, are very soon killed. Received into the stomach of the mosquito, the fluidity of the blood seems to be preserved all the time.



it is in that organ. But the best instance of this is the leech, which, as is well known, retains the blood for several months in its stomach uncoagulated, this is doubtless due in great part to the contact with living tissue, affording no scope for liberation of the fibrinogenous ferment.

The following experiment lends force to the supposition that the absence of oxygen is the cause of embryo mortality —

*Experiment 5* — I took two slides (*a* and *b*) and charged them with blood from the finger. They were of course carefully oiled, and every precaution taken to ensure the safety of the embryos. Slide *a* was found to contain five filariæ. Round all its edges was carefully painted a solution of Canada balsam in chloroform, the glass being so held as the application was made to each edge that risk of the vapour getting between the glasses was obviated or reduced to a minimum. When quite dry a solution of ordinary sealing-wax in alcohol was painted over in like manner, so as to hermetically seal the included fluid from the outer air. The embryos were immediately examined, to make sure that no injury had been done them, and they were found to present all the appearance of health and vigour. Not so, however, two hours afterwards, at which time examination showed them all to be feeble and stretched out, one was apparently dead. 12 hours afterwards not an embryo or even the remains of one was to be seen on the slide, though no signs of desiccation or coagulation were apparent, the blood globules rolling about freely on being shaken.

To make sure as to the vigour and general salubrity of the filariæ on slide *b*, it was not sealed up until 12 hours after preparation, and prior to doing so it was carefully examined. The parasites were vigorous and presented the appearance common to healthy specimens. The same process was again carefully gone through, and immediately afterwards the slide was examined to discover the condition of the embryos, of which there were 10. Six hours afterwards only 7 were visible, all very feeble, and in 12 hours they had all disappeared. Slides simply oiled but unsealed, prepared at the same time as these, preserved the contained embryos for the usual period.

It may be that, in spite of all precautions and apparent success in prevention, the vapour of chloroform got in between the glasses and brought about the result, but I do not think this was so. However, the foregoing are the results of my observations, and, of course, require further and corroborative investigation by independent observers before the opinions I have adopted can be accepted generally.

Dr SONSINO of Egypt states\* of the filariæ seen in the urine of chyluric patients that generally, even if the examination is made soon after emission of the urine, the embryos appear dead, or if living, their movements are very slow. This is very different from that which he has verified in regard to filariæ in the fluid of lymphocoele. He supposes that the ordinary acid urine is favourable to their vitality.

This might be thought to suggest the possibility of  $\text{CO}_2$  being the cause of death, though of course here also the advocate for absent O may urge the deprivation theory.

In urine the tension of  $\text{CO}_2$  is estimated at 68 mm, while that of venous blood is only put at 41 mm of mercury.

It is a fact (*see* Experiments made to determine the effect of certain substances on the filariæ, recorded in my last paper†) that water added to the slide brings speedy death to the parasites, and it was suggested that this was probably due to rapid absorption of the

\* *Transactions of the Epidemiological Society, London, 1881-82, vol 1, N S, 151*

† *Customs Medical Reports, xxi, 22*

fluid Again, Dr MANSON has stated that, provided the density is kept up to that of serum, the addition of fluid does not injure the embryos, and even recommends using urine to compensate for the evaporation which takes place when they are preserved in blood alone He does not mention how long they lived after adding the urine, or whether it affected their vitality at all, but assuming it did not, this fact would seem to support the contention that  $\text{CO}_2$  in the presence of O is innocuous Red globules of course contain and continue to give out O for long after their withdrawal from the body, and in the confined area under a cover-glass, with the disproportionate quantity of urine it would be possible to insert, sufficient gas might be present to obviate disadvantages which in its absence would be disastrously predominant In the present hypothetical state of the question I can do no more than call attention to established facts, suggest their possible bearing and leave it to each one to draw his own deductions

To sum up, the following conclusions are those I submit as borne out by what I have described —

1—Accepting that parturition in the parent worm is continuous and excessively, prolific, then removal of those filariæ which have had their chance of mosquito withdrawal but have escaped selection, is necessary in view of the swarm which will inevitably enter the blood from the lymphatic system at the next period of its suitability for their reception

2—The marked difference between the condition of that fluid when favourable for filarial development and its state when hostile to their existence seems due either to the presence of an excessive amount of carbonic acid or to the absence of a sufficient quantity of free oxygen The former necessarily involves the latter, and experiments seem to show (a) that direct contact of carbonic acid in presence of excess of oxygen is not, immediately at least, injurious, that (b) exclusion of oxygen, either directly, or by surrounding the blood with carbonic acid, brings about the destruction of the parasites, and that (c) the behaviour of the filarial embryo, both in the human blood and when contained in the mosquito, indicates a desire for this gas Consequently we may assume that not improbably the presence of oxygen is essential to further development, and its withdrawal or diminution in quantity conducive to death

I would therefore suggest the following as the course pursued by the embryo from birth until its absorption by the mosquito For a period of not less than 12 hours, and probably in no case exceeding 24, it remains in the lymphatic system At some time during this period, urged by the favourable conditions in the hæmic circulation, it exhibits for the first time selective ability and enters the latter It will be observed that, supposing 12 hours the least time apportioned for intra-lymphatic existence, and that the filariæ disappear from the blood at 7 A.M., appearing again at 7 P.M., those born between these hours will be ready for entrance into the blood at various times during the following night, but those born during the night itself would only be fitted for intra-vascular existence at some time during the day This infers a longer or shorter delay, according to the hour of birth, and may account for the fact of embryos being occasionally seen in the blood during daylight, as was the case with all MANSON'S early finds, got as these were during that period It is possibly, however, more

or less the result of accident, due either to what we may call impulsive injudiciousness on the part of a few, or untoward subjection to the irresistible forces present at or near the termination of the thoracic duct, within the scope of which they have been tempted to approach too closely

As to the facility for postponing their advent, shown by those embryos born during the night, we have actual proof of such capability on the part of the parasite in those geographical results I have previously described. For, taking the case of the man from India, the embryos seen in that country and those visible in England being presumably from the same parent, and her parturitive routine, we must suppose, remaining unaltered, those of the young which would have appeared at 7 P.M. in the East must have been able to defer their debut for over 5 hours when the man arrived in London, and applying this same reasoning to the hypothetical Fijian, we come at 12 hours as probably the extreme limit of restraint. I need scarcely point out that the term "postponement" is only used in a figurative sense, implying that the products of certain hours that appeared at 7 P.M. in India would, if keeping to the same arrangements, appear five hours too soon in the blood in London, and, of course, compliance with the necessities of travel is really only an adjustment in sequence.

Although, as before pointed out, I believe the embryos wanting in locomotive power at this stage, still there can be no doubt of their ability to resist moderate onward pressure, either by actual adhesion, which, however, I do not think very probable, or, as is more likely, by the opposition of forces resident in the parasite, which, converging towards a central point, are able to control, within certain limits, the duration of stay in the sluggish lymph current. When the proper time arrives, however, the embryos yield to the flow, and their passage to the now attractive blood is brought about. Note that in the mosquito, where migration has to be effected in a stagnant medium, inherent locomotive powers are required, so at or about the end of another 24 hours—observe the coincidence in duration of period—the embryo temporarily becomes possessed of this ability, moving about freely. Arriving at the thorax and beginning a stage where quiescence is more conformable to its necessities, the parasite seems again to enter on a sort of chrysalis state, or, in other words, to become passive.\*

To briefly summarise the above.—As the result of continuous parturition in the parent, the embryos pass a certain term of existence in the fluid in which, when matured, they will depend for sustenance. Emerging from this, their next environment is one where the essentials for development are amply provided. The mosquito then intervenes, and once more conditions suitable to filarial requirements are afforded, and, lastly, at maturity the parasites find themselves deposited in a position most favourable for transport to their future and permanent habitat. Thus all the embryonic stages are passed in different media and under varying conditions. From the very outset the young embryo, as it is launched on the first important phase of its career, is made to enter the blood at a point whence it may be most speedily in contact with that which is so essential to its vitality and growth. Free of the thoracic duct, rapidly floated through subclavian vein and heart, it quickly reaches the lung, where oxygen in abundance refreshes and strengthens it prior to starting on the circuit whence insect

\* MANSON, *Customs Medical Reports*, XIV, 12

delivery becomes possible. Failing to secure this, and returned exhausted, once more the invigorating process is undergone, and so on until the time arrives when the competition is decided, and room has to be made for the eager throng that in turn must be afforded a chance,—nay, are even then preparing for the coming of night with its opportunities. The rejected must go. The choice for survival has been finally made. This is accomplished by no sudden or irregular convulsion, but by the quiet and orderly necessities of another and greater economy. A change takes place, the nurturing host becomes the ruthless destroyer, the equilibrium of nature is preserved, and she pursues the even tenor of her routine. The harmony of the whole conduces to the excellence of its parts.

### ELEPHANTIASIS

I now come to discuss the bearing *filaria sanguinis hominis* has on elephantiasis. But before entering fully on this, a preliminary consideration of the leading characteristics of the disease may facilitate further inquiry. Sir JOSEPH FAYLER, both before the Pathological Society in February 1879,\* and in a lecture,† states his belief that elephantiasis is a disease peculiar to tropical climates, and distinct from those affections met with elsewhere, which present, however, somewhat similar appearances.

Dr STEPHEN MACKENZIE, on the other hand, thinks that no definite line can be drawn between dermatitis and elephantiasis Arabum, and, in fact, that it is only a question of degree. Mr JONATHAN HUTCHISON,‡ in a lecture delivered at the London Hospital, while clearly differentiating this form of enlargement from other morbid conditions in which increase of size forms the most prominent feature, sums up his description with the following graphic statement (*The italics are mine*)

*Inflammatory disturbance of nutrition is the starting point.* The tissues are flooded with serum, and owing to their dependent position—scrotum, labium or leg—this serum has difficulty as to its absorption. The cells of the part already in a state of excitement feed on it, and irregular modes of growth are the result. You might obtain a somewhat parallel phenomenon if to any given village unlimited supplies of beef and beer were weekly consigned for gratuitous distribution.

From the various general and minute investigations made by pathologists at different times, the chief morbid changes may be summarised as follows.—Epidermis thickened, enlarged papillæ, dermis enormously thickened, and its tissue looking as if infiltrated with a clear fluid, hypertrophy of subcutaneous connective tissue, due to increased cell proliferation, which latter state VANDYKE CARTER says may extend as far as the periosteum, dilatation of the lymphatics, extending (according to the same authority) as far as the thoracic duct, sweat-gland ducts elongated, blood-vessels numerous and enlarged, nerve connective tissue thickened. § CORNILL, in a special and extended examination, particularly mentions finding the lymphatic glands in a state of chronic inflammation ||

\* *Lancet*, 1879, i, 267

† *Ibid*, 1879, i, 433

‡ *Ibid*, 1876, ii, 282

§ *Ibid*, 1880, i, 565

|| *Ibid*, 1883, ii, 554

The foregoing appears to be a fair *résumé* of the pathological points on which all observers agree, and which my own investigations, so far as they go, certainly support. Although, as far as I can discover, Sir JOSEPH FAYRER stands alone in the supposition that the elephantiasis Arabum of tropical or sub-tropical countries differs essentially from that condition which has been described and asserted to be by so many observers the same, though occurring beyond the sphere defined by him,\* still, any opinion coming from this distinguished Indian surgeon, with his vast experience, deservedly carries great weight, even in the face of testimony from witnesses whose number and exceptionally high standing would otherwise render their evidence incontestable. Referring to some of these I find Mr JONATHAN HUTCHISON, in the lecture previously quoted, enters minutely into the pathology, expressing a strong opinion and giving illustrative cases. The cases of Mr BRYANT,† Mr HOLMES, Mr ALCOCK, Mr CARR JACKSON, Dr STEPHEN MACKENZIE, and Dr CROCKER‡ and Dr STRANGE§ are distinctly described as elephantiasis Arabum occurring in the United Kingdom, in subjects who, I gather from the absence of any statement to the contrary in some instances and direct assertion of the fact in others, were natives of Great Britain and always resident there. Again, before the Pathological Society of London,|| in a discussion raised on some cases shown by Sir JOSEPH FAYRER, with special reference to their filarial origin, Dr TILBURY FOX alluded to cases occurring in the United Kingdom, and stated that "the anatomical changes of the skin in the (Indian) cases described agreed with those he had himself observed."

The foregoing are all cases of elephantiasis of the lower extremity. The following is, however, I imagine, a very typical case of elephantiasis scroti, arising and treated in England. Mr BICKERSTETH, of Liverpool, who reports it,¶ styles it "a large scrotal tumour," laying special stress on the fact of there being a fibro-cartilaginous growth embedded in a mass of hypertrophied skin and subcutaneous tissue, attached by a tough fibrous material to the upper part of the scrotum towards the position of the left external ring. It would appear also from the history given by the patient that a growth commenced in the groin, and afterwards becoming detached slipped down into the scrotal sac. For some time it remained freely movable, the patient being able to slip it up and down from groin to scrotum. Gradually, however, becoming fixed in the scrotum it slowly increased in size, and would seem to have excited the morbid condition with which I am specially concerned at present.

At a further stage of this inquiry I shall again have occasion to refer to this case as one supporting, if not confirming, the theory as to the hypertrophic lesion being a consequence of an excitant which may assume any form, and which under favouring circumstances can induce tissue changes, bringing about a condition not necessarily confined to any one locality.

\* In FISMARCH and KULENKAMFF's monumental work (*Die Elephantiasischen Formen* Hamburg RICHTER, 1885) the distinction between tropical and extra tropical elephantiasis is stated simply in the form that one is endemic and the other sporadic. HUETER (*Deut. Ges. f. Chirg., Dritter Congress*, quoted by E and K) asserts that in Pomerania, Mecklenburg and West Prussia the disease is to a certain extent endemic. Wherever it is encountered the tissue changes are identical.

† *Proceedings of Royal Medico-Chirurgical Society*, 1866, *Lancet*, 1874, ii, 586.

‡ *Lancet*, 1880, ii, 619.

§ *Ibid.*, 1883, i, 411.

|| *Ibid.*, 1879, i, 268.

¶ *Ibid.*, 1871, ii, 187.

or race by anything specific in the ensuing disease itself Mr BICKERSTETH reports on the mass, after removal, as follows —

The greater bulk of it consisted of hypertrophied scrotal skin and subcutaneous tissue, the latter so infiltrated with serum as to present an almost jelly-like appearance Embedded in this was the original growth, about the size of a 32 lb shot, enclosed in a firm capsule and presenting on section all the appearance of a fibro cartilaginous tumour Subsequent microscopic examination showed this to be its true structure From its upper part a firm band had passed upwards, which was divided in the course of the operation

This speaks for itself as to the pathology, and needs no comment from me I may mention, however, as a further coincidence that a tough, semi-gelatinous mass is often found extending from the testicles high up in the scrotum to the lowest part of the latter

Dr MANSON,\* when describing his operation for scrotal amputation, specially notices this, and I remember, on the only occasion when I saw him operate on such a case, a band similar to that described by Mr BICKERSTETH passed up to a position so suspicious as to cause Dr MANSON to hesitate, while we held a brief consultation touching the possibility of its connexion with a hernial sac This structure may be merely the hypertrophied remains of the gubernaculum thus rendered conspicuous

FAIRLIE CLARKE, in his *Manual of Surgery*, mentions having seen an elephantiasis of the scrotum which, when removed by Mr WIBLIN of Southampton, weighed nearly 30 lb, also one removed by Sir WILLIAM FERGUSON from a bricklayer who had never been out of England, and who attributed the commencement of his disease to a blow

Then there is LISTON's celebrated case, while, with reference to elephantiasis of the leg, the same author (F CLARKE) quotes Dr C J RICHARDSON's case of a young woman, who also had never been out of England The illustration, copied here, accentuates this latter as a



typical one No doubt there are several others available to one with greater means of reference at his disposal than I have, but perhaps these may suffice to show that true elephantiasis occurs in temperate climates, though much more rarely than in the tropics

Again, on more critical examination of the two sides, as represented by Sir JOSEPH FAYRER on the one hand and the European authorities on the other, the difference may be found less irreconcilable than at first sight appears, or it is at any rate susceptible of more satisfactory explanation

\* *Customs Medical Reports*, III, 28

Thus, assuming hypertrophy to be a condition set up by the presence of some excitant, without reference to the geographical location of the subject, one can see how, supposing in any given area exciting causes were more abundant, and climatic influences favoured the tendency in the tissues to respond to the stimulus, in these districts or countries the number of persons affected would undoubtedly be greater than in places where irritants were less common and the tissues less inclined by hereditary or climatic influences to resent their presence. Hence, although the disease must be spoken of as endemic in the one and sporadic in the other part of the world, this qualification is only governed by the prevalence of exciting causes peculiar to given localities, while the consequences are pathologically the same everywhere.

Reflecting for a moment on the manner by which plasma exchange takes place between the blood and tissues in the normal state, one is reminded of the fact that, strictly speaking, the only difference between this process and that obtaining after a morbid condition has been induced (inflammation) is one of degree, the results varying in direct ratio to the activity of the stimuli calling them forth. From the demand made by a part in its healthy function, through increased exercise of this, or irritation short of exciting inflammation (PAGET,) to extreme disorganisation of nutrition, ending in molecular disintegration and death, we find the same principle in action. Then, working back from this last state we see resolution progressing stage by stage until the normal equilibrium between tissue want and lymph supply has been re-established. In other words, it would seem we arrive at a relation between hypertrophy and inflammation *vis-à-vis* the original stimulus that is in great part dependent on the amount of vigour or permanency of the latter, affected to some extent by induced or existent regional susceptibility. Hypertrophy, standing, as Sir JAMES PAGET shows, on the neutral ground between healthy function and inflammatory action, can, we may suppose, assume proportions bringing it so close to the latter state as to render definition of a distinct boundary line in all portions of the affected region difficult, or perchance the state itself induces concomitant changes which may be more properly included under inflammation, and this, if so, would account for certain seeming variations from the typical pathological appearances common to elephantiasis wherever met. Admitting, then, that the primary cause of elephantiasis is some kind of excitant, one can readily surmise how completely the mature filarial parasite might come to fulfil this rôle, though not perhaps at once or even at all, if taking up a position remote from sensitive surroundings, such as in a large lymphatic. Even if fixed beyond this system, it may well be that a solitary filaria could be accommodated and bring forth its offspring without materially affecting the normal equilibrium.

If, however, for any reason the parent worm took on a morbid state,—such, for instance, as would be shown by its premature discharge of the embryos,—then, by reason of this, coupled with the abnormal condition of the progeny, it is possible that the amount of subdued excitement necessary for producing hypertrophic changes may be readily afforded, or if the parasites are numerous—and how easily this may be brought about we can imagine when remembering that the subject himself is an ever-prolific centre of transmission,—the peculiar frequency of the disease in these localities, as compared with other places not so qualified, can be accounted for.

That hereditary influences have marked effect in favouring the result under discussion is verified by the experience of most observers, but I will only allude at present to that of Mr BRYANT, who quoted to the Medical Society\* the case of two lads, sons of a West Indian but brought up in England, who developed elephantiasis while there. The same gentleman (*loc cit*) further stated that he knew of a case in Leicester where the disease had been transmitted through three generations, none of the patients having ever left the town.

Race susceptibility is frequently described as another predisposing factor. No doubt people indigenous to certain regions where external exciting causes are common, acquire the disease and transmit a proclivity to their posterity while resident in that part. But if large numbers of the same race be transported to countries where these primary causes are rare, after a few generations they do not seem to afford more instances of disease than do the natives of their adopted land. This is the fact with African negroes settled in the United States. Some may therefore think hereditary tendencies acting through several generations subjected to continued risk will more correctly cover what, *prima facie* and under certain circumstances, might seem to be characteristic of special peoples.

With reference to the liability of any form of irritation to set up elephantiasis, I would refer to the following as strongly tending to support this hypothesis, all being cases where the existence of emboli or other obstructions to lymph-flow cannot be suggested as inducing the state referred to —

Mr ALCOCK's case originated from a dog-bite, the enlargement beginning as soon as the wound had healed. CARR JACKSON's case commenced with abscess in the lower part of the belly.

These occurred in England. From Bengal† Dr HAMILTON reports a case that commenced from a tulwar cut received below the knee. Even by my theory this of course may in that country have been merely the final stimulus needed to complete the action which other causes would eventually have brought about unaided.

STEPHEN MACKENZIE‡ reported a case from Ireland to the Clinical Society of London, which began 10 years previously with an injury to the leg, and stated that he had been informed by Mr BARKER that cases of elephantiasis were not so rare in Ireland as in England.

Dr DOWSE, at the same meeting, also mentioned a case of his, due to syphilitic infection.

Dr HEATH STRANGE§ showed the Medical Society of London a remarkable case of elephantiasis of the thigh, apparently consequent on vaccination.

Mr FRANCIS MASON, the president of the society (*loc cit*), also alluded to a similar case under his care, and in still stronger corroboration, Dr ROUTH (*loc cit*) not only stated that he believed it possible to produce the disease artificially, but mentioned having actually seen this done by amyl nitrite accidentally introduced in an injection of morphia.

\* *Lancet*, 1883, 1, 411

† *Ibid*, 1879, 11, 649

‡ *Ibid*, 1880, 11, 619

§ *Ibid*, 1883, 1, 411



Mr JONATHAN HUTCHISON \* states as follows —

In English practice we meet with the two varieties (nævoid and smooth) In most cases the tuberculated form of elephantiasis takes its origin from some local injury or local source of inflammation, an ulcer on the leg, an attack of eczema, or, on the genitals, venereal sores may be its starting point The smooth form, however, begins usually without such cause, and is often set up by a form of inflammation somewhat resembling erysipelas

We have in both forms of elephantiasis a very interesting illustration of the results of over-feeding of tissues

Referring back to Mr BICKERSTETH's case, the following quotation from that gentleman's report may be thought pertinent to the question immediately before us The patient's

Statement with regard to the scrotal tumour of which he was the subject was that 17 years previously he noticed there was a small lump about the size of a bean in his left groin, situated near the lower end of Poupart's ligament

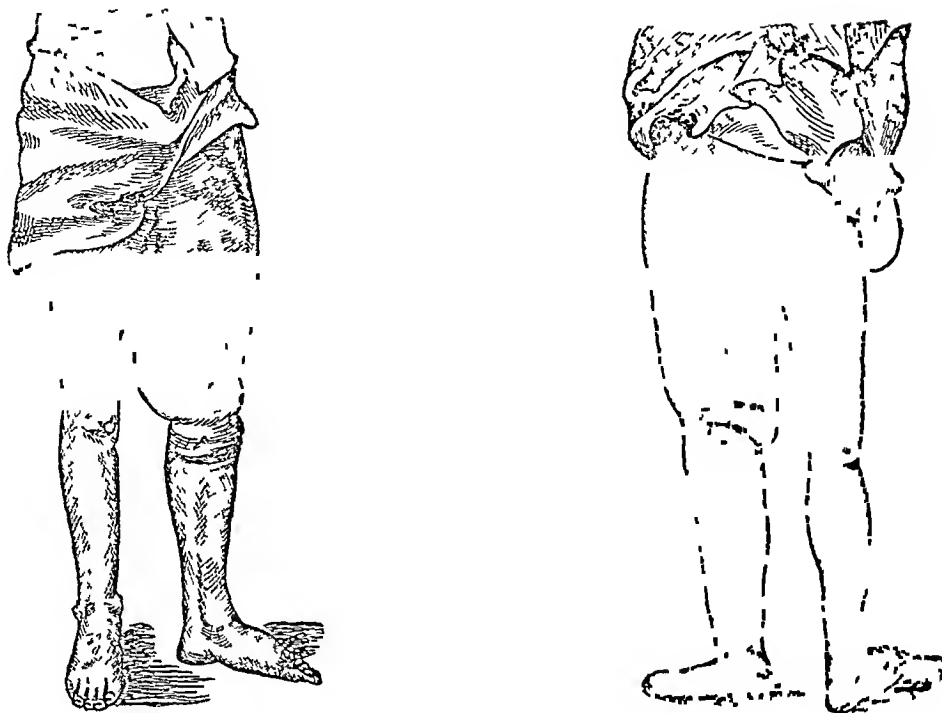
One day after retching violently and

While straining in the act of vomiting, he felt this lump slip down into the scrotum For quite 12 months after this occurrence the lump remained movable, so that he could slip it up into the groin again at pleasure Gradually, however, it became fixed in the scrotum and slowly increased in size, dragging down with it the left testicle to a lower level than the right one For the first seven years or so the tumour slowly but steadily grew till it was about the size of two fists, not causing any pain, but after that time it grew more rapidly and soon doubled its size As the tumour grew so the scrotal integuments and structures beneath all took on a hypertrophic action and also increased in bulk Finally the tumour and its hypertrophied covering attained the enormous size represented in the woodcut



ELEPHANTIASIS SCROTI, after BICKERSTETH (*Lancet*, 1871, 11, 187)

\* *Lancet*, 1876, 11, 282



ELEPHANTIASIS OF THIGH, after CARR JACKSON

If the above be accepted as conclusive of the proposition, then we can see how the *filaria sanguinis hominis* might very frequently, through some untoward disturbance to its possibly otherwise harmless existence, become a fruitful source of elephantiasis, while at the same time, though to a lesser extent, because of their comparative rarity, other causes perfectly different in themselves might, in places remote from those where this parasite is found, produce exactly the same pathological results. No doubt the *filaria* is a very potent and indeed somewhat general source of mischief, for Dr BANCROFT told the Medical Society of London that he could give a list of 30 different diseases connected with *filariæ*, while he also added that, having examined many cases of elephantiasis (presumably, in some instances at least, post-mortem), no *filariæ* were to be found.

Sir JOSEPH FAYRER, therefore, may be quite justified in saying that the endemic elephantiasis of India, set up by purely local excitants and fostered by climatic influence and predisposition, is something which as regards primary cause and intensity of effect differs from the same disease occurring elsewhere, and may be amenable to treatment. On the other hand, those who accept elephantiasis *per se* as pathologically the same everywhere are justified to the full extent of their assertion. That *filariæ sanguinis hominis* do take a preponderating share in the causation of elephantiasis and allied diseases in many countries I scarcely think can be denied, indeed, it is probable that in places where other causes are now suspected or accepted, examination may yet prove *filaria sanguinis hominis* the chief offender. Yet even in districts

like Amoy, where 1 in 10 of the people are infested, I should not be surprised to hear of an occasional case of elephantiasis where the closest examination, both ante and post mortem, should not only fail to discover the parasite, but favour the supposition of another and quite different origin

Although I have generally confined myself to the use of the term elephantiasis, if the views I suggest of that disease be deemed satisfactory, lymph discharge, whether from the surface of the skin, such as in "milk scrotum," or into the urinary tract (chyluria), would seem to be accidents of the main disease which, when they occur, by providing an outlet for the superfluous lymph, deprive the tissue elements of the opportunity for undue voracity, and thus arrest or modify the hypertrophic changes that we observe in parts deficient in such relief. This may also account for the comparative rarity with which elephantiasis is associated with lymph-discharging phenomena

In the cases where the two are combined it is perhaps not too much to assume that the external flow has been established at some period subsequent to the hypertrophy or perhaps in the course of its progress, when we may expect, and as a fact do find, the growth, if not actually checked, so considerably modified as to lead to a reasonable suspicion of an intimate relation between the two manifestations

MR CARR JACKSON, when referring to his case, states as follows —

The tortuous lymphatics occasionally burst naturally and discharged freely. The boy states that he has collected pints of it. The limb has evidently decreased in size since the lymphatics came to the surface and have disgorged their contents from time to time

With chyluria no doubt the ready exit offered to the discharge by comparatively unprotected and tender vessels affords an early means of arresting a condition which if set up in those regions would be fraught with much graver consequences than follow hypertrophy of less vitally important parts. It would seem as though these phases of the disease were natural efforts to avert results that would ensue if all the lymph exuded was available for tissue consumption

In strong confirmation of the belief that lymph scrotum and chyluria are only phases of one disease, I would refer to Dr MANSON'S book,\* in which he proves by clinical evidence and characteristically concise reasoning the common origin of these diseases with elephantiasis. This allusion to that able observer and indefatigable worker naturally leads me to the consideration of his theories as to the part *filaria sanguinis hominis* plays in the causation of elephantiasis and allied diseases

Briefly, Dr MANSON suggests that the primary cause of the disease is obstruction in the lymphatic glands, plugged as they become by the premature discharge of immature filariae confined in the unstretched chorion, thus forming, together with the enclosed organism, an ovate body considerably larger than the full-term embryo. Five times larger than a lymph corpuscle, these gradually plug the afferent vessels in the main lymphatic glands, obstructing lymph-flow and leading to the lesions indicated

\* *Filaria Sanguinis Hominis* London H. K. LEWIS, 1883

If this view be accepted, we must assume that elephantiasis and its allies are secondary to lymphatic obstruction, *ve*, result from a mechanical in contradistinction to an organic cause, but this would seem to be more correctly applicable to a less chronic condition. And although, in view of the valves in the vessels, it does not seem easy to agree with Dr MANSON'S theory as to "regurgitation" being the cause of lymph diffusion in elephantiasis, one could see how, if from any cause the lymphatics were obstructed in any portion of their continuity, the pressure from behind would rapidly fill and distend the intervalval portions of the tube, giving to the whole that cord-like, knotted feeling pathognomonic of œdema following interference with lymph-flow. But this condition is notoriously absent in elephantiasis, on the contrary, all observers agree that although the lymphatic coats are hypertrophied, the lumen of the vessel is uniformly enlarged. Indeed, Dr MANSON himself pointedly calls attention to this fact in more than one instance.

Of course, if, as a consequence of the continued and increasing incitement, the vessels are unable to remove the plasma as fast as it is exuded, accumulation takes place in the affected part, and the sodden state described by pathologists is produced. But this would then be due to the proportional inequality between the outpour of lymph and its on-flow, though this latter may be even hastened, and actually passing through tubes capable of conveying abnormally large quantities. This would also account for the tissue saturation being localised in the neighbouring parts, in some instances in apparent defiance of gravity.

Mr J HUTCHISON, in his lecture before quoted, distinctly defines the difference between œdema primarily due to lymphatic obstruction and that concomitant with tissue overgrowth. For instance, when speaking of the former he says\* —

In lymphatic cases the disease is almost always non symmetrical. We may note also as a curious fact that very commonly no enlargement of the lymphatic *glands* occurs. I should be inclined to suspect this cause—obstruction of lymph—in any case in which the œdema was strictly local and abruptly limited, there being no evidence of disease of the veins or of mechanical pressure. I should consider my diagnosis confirmed if the œdema cleared off without leaving any dilatation of superficial veins, and during the progress of the case I should repeatedly and carefully examine the limb in order to ascertain if any little lines like whipcord could be felt under it. Indeed, it is not unlikely that primary disease of the lymphatics is extremely rare, and that almost always it is secondary to inflammation of the skin and subcutaneous tissues.

Then passing to his seventh group, elephantiasis, he says —

There is also overgrowth. And here we establish the line of demarcation between elephantiasis and all other varieties of persistent œdema. Prove that the tissues have become hypertrophied, that they are not only sodden with serum but that they are overgrown, and you prove the right of the malady to the title of elephantoid. Size ought never to be made a basis for classification, and between the conditions of chronic thickening of skin with solid œdema and papillary growth, which are not at all uncommon in our out-patient rooms, and the most hideous example of Barbadoes leg which you could find in the West Indian islands, there is no distinction excepting that of degree, the pathological process is precisely the same in both.

What chiefly concerns me at present in the above quotation is the support given to the view that primary affections of the lymphatics are extremely rare, and that when they do

\* *Lancet*, 1876, ii, 282

occur a condition is set up not only failing to agree with but distinctly differing from that which obtains in elephantiasis. Assuming this point unsettled, however, there seem to me to be other and very important difficulties in the way of Dr MANSON's hypothesis. If we imagine the parent worm situated, say, somewhere in the thigh, and that she miscarries, the ova being conveyed to the afferent vessels in the capsule of the inguinal gland—here suppose the ova to be distributed over the capillary plexus, and, *seriatim*, plugging them,—then as far as that gland is concerned its functions would cease, and the process would be carried on until all its fellows were similarly blocked. We thus arrive at that condition of lymph stasis which Dr MANSON assumes must be produced before the hypertrophy commences, but at the same time, if we admit this we must also grant that the circulation of lymph over the whole of the lower extremity is now stopped, and the continuity of an important, if not thoroughly understood, nutritive current has been suddenly broken. Thus one might expect the functions of the whole economy to be seriously affected, supposing lymph return essential to the completeness of the general nutritive system, and this would certainly appear to hold good of the region so suddenly debarred from taking that donative part which to a great extent modifies the effect of deficit in the general store consequent on its primary demands. Hence, though an obstruction in the lymph-vessels, strictly circumscribed in its effects, might for a time be borne, so soon as this lesion involved a large area and comprehended a duration approaching the chronic, changes more marked than mere local hypertrophy would be induced, and the system as a whole would speedily exhibit consequences very different from those present in even the most advanced cases of elephantiasis.

I do not understand Dr MANSON to mean, nor does it seem consistent with his theory to suppose, that anything short of complete and nearly simultaneous occlusion takes place prior to the hypertrophic manifestation. If it be suggested that after the occlusion of the glands of one side lymph return can still go on by the anastomoses with the lymphatics of the other, it must be remembered that the ova could also pass in the same way, and plugging of the glands on both sides would eventually occur. In support of this I need only quote Dr MANSON's statement \* (The italics are mine)

Anastomoses for a time will aid the passage of lymph, but the anastomosing vessels *will carry the embolic ova as well as the lymph*. The corresponding glands will then, in their turn, be invaded, and so on until the entire lymphatic system connected directly or *indirectly* with the veins in which the parent worm is lodged becomes obstructed.

In fact, on the completeness of this stoppage, on the affected side at least, I gather Dr MANSON holds the inception of the disease depends. If this be the case, how comes it that the affection is not generally distributed over the whole of the part or parts on the distal side of the glands? Thus, if a scrotum is elephantiased in consequence of the inguinal glands being obstructed, why are the limbs also not always affected? Or if the leg, as is generally the case, be the seat of disease, how comes it that very often the thigh is not only unaffected, but little or no signs of interference with the normal nutritive changes of that part are apparent?

\* Customs Medical Reports, xxiii, 14

Venous absorption would scarcely account for this Dr MANSON, in his work previously quoted, writes as follows concerning Case 20 —

The integuments of the left thigh, over its inner, anterior and posterior surfaces, are distinctly elephantiased from the knee to a point about two-thirds up the thigh, the rest of the limb appears to be quite normal, but in the situation mentioned the skin is darker than that on the corresponding part of the other thigh

And again —

It may be objected that the affection of the skin of the thigh in this case was not elephantiasis. If it was not this it is certainly a wonderful coincidence that his mother, who lived in the same house with him, exposed to the same chances of filarial infection, should develop true elephantiasis of the leg

Not to multiply instances of partial elephantiasis, I will only refer to Mr CARR JACKSON'S case (see woodcuts, page 29), wherein the thigh was affected, leaving the leg apparently sound, and here I might remark on the bearing such instances would have on arguments tending to support the hypothesis of lymph gravitation being the cause of overgrowth in the leg. It would also seem improbable that the general manifestation of disease was due to a gradually progressive occlusion of the glands, for supposing the ova capable of permanently plugging the capillaries, in such constant and practically unlimited numbers as the former are, the process would obviously be continued so long as the supply lasted, and until all the glands were stopped up

How does the theory of occlusion agree with the structure and arrangement of the lymphatic system? We must remember that although the main vessels divide up into numerous smaller ones in the capsule of the gland, the central part of this organ I scarcely think can be described as "solid" in the sense I understand Dr MANSON to use the term. Without doubt the cortical follicles and medullary cylinders consist of, comparatively speaking, dense adenoid pulp, round and outside of which the lymph filters on its way towards the efferent vessels, and it is here that the reticulum catches and detains pigment or other particles for disposal by the large amœboid lymph corpuscles wandering about in the lymph paths, devouring or disintegrating such extraneous matter, but I do not see how the arrest of these could there interfere with the circulation of the fluid past them. At any rate, if the gland be plugged on its distal side, no lymph, properly so called, ought to be found within the organ itself. It might be suggested that possibly the exploratory needle did not penetrate to the interior of the gland, getting no farther than the "varicose" capillaries in the capsule. But if this were so, disintegrated filarial envelopes, embryos and other *débris* of like nature could scarcely be looked for, seeing that these are changes proper to the gland itself, and not capable of being produced in the parts external to it

Dr MANSON and other observers repeatedly speak of withdrawing a quantity of "milky lymph" from the enlarged glands, while Dr MANSON quotes case after case where he found "embryo filaræ in all stages of vigour" and "numbers of threads," which he himself suggests are the remains of the "collapsed sheath of the embryo, the body of which had disappeared by absorption or disintegration." As to the presence of filaræ in enlarged glands when none appear in the blood, I can personally testify. How these filaræ get into the gland if the passages thereto are all blocked, and not only in solitary or accidental instances but

in great numbers, seems a very formidable difficulty. If what I have previously stated is correct as to the solvent effect of lymph or liquor sanguinis on the debilitated embryo, then it would seem that, presuming the ovum even temporarily arrested in a capillary, before long the surrounding fluid, aided by the back pressure and the motion of the contained embryo, though not perhaps in every instance entirely disintegrating, would, at any rate, so modify the shape of, and it may be soften, the embolus as to allow its passage, at the same time injuring some of the embryos to the extent of causing their immediate death and subsequent solution in the gland, while others, more hardy, having stretched their envelopes, pass on in a condition less morbid, and so account for the varying stages of vitality exhibited by the filaræ found in fluid taken from enlarged glands. Besides, the constriction, if any, on the outside of the ovum, being doubtless similar to that which enables or aids the normal embryo to elongate its sheath prior to leaving the maternal canal, would most probably tend here also to favour a like condition, and thus facilitate a progress only temporarily interfered with by the globate form of the body as first presented. From injury or immaturity the embryos eventually perish in the gland, and this may account for their non-appearance in the blood in advanced cases of elephantiasis. It also seems reasonable to assume that with increased viciousness of habit which constant miscarriage sets up, the discharge takes place at progressively earlier stages of embryonic life, and the offspring are less and less capable of prolonged existence or resistance to intra-glandular influences.

Temporary inability of the parent to discharge young with the vitality necessary for withstanding the glandular influences may also account for the occasional absence of embryos in the blood, their reappearance being due to the recovery of the affected worm, or, it may be, of course, to the arrival of a new and healthy parent. Again, granting that the ova could plug an ordinary afferent capillary, it is fair to assume this must cease as soon as these tubes are dilated to an extent proportioned to that observed in the larger vessels.

VANDYKE CARTER tells us that this dilatation of the lymphatics extends as far as the thoracic duct. CORNIL,\* though he found the glands in a state of chronic inflammation, does not mention or hint at embolism or varicosity of the capsular vessels, a condition one would surely have noticed when making the minute examination that eminent pathologist describes. Apart, however, from the fact of embryonic presence in the glands seeming to point to patency of its approaches, ought we not rather to expect a state of atrophy in an organ the functions and utility of which have been so completely interfered with? But then, could such a condition have escaped the notice of observers like VANDYKE CARTER, CORNIL and others who have had opportunities of making postmortem examinations? Or would such be consistent with the chronic glandular enlargement observed during life, and which CORNIL and others have shown to be due to inflammation of the connective tissue in this structure?

The foregoing are some of the chief difficulties arising in my mind when considering Dr MANSON's pathological views. I trust, however, that while attempting to define them I may not have appeared either dogmatic or hypercritical.

\* *Lancet*, 1883, ii, 554

Well aware of the immense difference there is between the labours of one who has to construct from most limited data and the comparatively facile task devolving on his critic, I am also fully conscious that in stating what follows, the position assumed is equally liable to adverse criticism. Whatever theories I advance are put forward with all the diffidence which the inadequate means at my command necessitate, and can merely, in the absence of more extended investigation, be taken as somewhat crude ideas, fortunate if useful in stimulating the attention of more favoured observers.

Assuming the primary cause of tissue overgrowth to be organic rather than mechanical in its origin,—that is to say, that the excess of lymph effusion is itself an intermediary consequence between the primary excitant and its most marked result,—I submit that whatever is capable of setting up increased plasmic flow, as distinguished from accumulation due to obstruction (being short of inflammatory effusion), whether it be the filaria sanguinis hominis, a wound, an ulcer or an eruption, provides the means for tempting cell voracity, and so produces all the manifestations at present under discussion, whereas the condition resulting from mere lymph stasis, due to a cause entailing suspension of an important circulatory function, would induce a morbid state, acute in its nature and not compatible with the sub-normal condition favouring hypertrophic changes. Suppose the filarial parent located in any given part, so long as it remained the sole invader of that region, it seems quite possible that the natural powers of adjustment might obviate any material disturbance of nutritive equilibrium. Though a demand for slightly excessive supply might be complied with, and no great disarrangement between the outcome of lymph and its natural removal occur, still, should this requisition be made too often, it might probably come about that the response assumed proportions beyond the capability of even the additional consumers to cope with, and in the first instance, if only to render the task of the absorbents less arduous, the tissue elements, prompted to undue participation, become, as a consequence of their indulgence, still greater stimuli, leading to freer lymph-flow, and so on. Greater demand is followed by hyper-proportional supply until we arrive at a condition where, progress as it will, the plasma contribution always exceeds the power either of the greedy overgrown tissues to overtake or the congested lymphatics to carry off. No doubt the filaria takes part in the extra voracity and its consequences, a morbid condition is set up in the worm—she miscarries, a state, by the way, in itself possibly capable of intensifying surrounding excitability, and then we have that step beyond mere excitation capable of inducing increased functional activity, as pointed out by Sir JAMES PAGET, and something allied, if not precisely similar, to the inflammatory condition is set up. At first this may go no farther than those febrile manifestations, lymphatic fever, exhibited so generally in elephantiased patients. The embryo filariæ from the affected worm or worms, discharged more and more prematurely, gradually fail in the vitality necessary to carry them beyond the glands, and at last cease to appear in the blood. In a word, I would suggest that after setting the morbid process going, the parasite, beyond possibly tending to continue the excitation, ceases to take any direct part in the action itself, nay, she may herself succumb to its vigour, forming the centre of a defined inflammatory area, and her remains finally find exit when the resulting abscess bursts or is incised\*. Should the host be in

\* MANSON, *op cit*, Case 23



a position liable to continued parasitic invasion, of course with the advent of each worm the tendency to set up excitation is greater, and when at last the limits are reached, and the filarial irritation, whether by reason of numbers or morbid changes in one or more of the invaders, becomes greater than is compatible with a normal condition of nutrition, evil consequences are induced and go on until the disease under notice is fully developed. Limited only by the power in the exciting cause or causes to extend their effects, we might thus account for the varying position and extent of the manifestations so often observed, though if, on the other hand, we attribute their origin to something necessarily affecting a whole region, the frequent restriction of its effects to a portion only would scarcely admit of such simple explanation. I think the case of the gigman To AH may usefully be quoted here in illustration of my supposition. This is the same man who formed the subject of my observations and experiments described in the *Customs Medical Reports* (xvi, 6), where his history was thus given —

In October 1879 he was 28 years old. He is a native of Amoy, where he resided until he was 21. From the time he was about 14 or 16 he has suffered at various periods from "fever and ague." At about the age of 18 or 20 he first noticed swellings in his groin, which, however, have increased but little, in fact, he thinks they show a tendency to lessen in size. He suffers during the hot season from sharp attacks of "fever and ague," otherwise he is in good health, well nourished, and generally fit for his work. He was not aware he had filariæ in his blood, and does not think much of the fact, although he watched the embryos under the microscope with much interest. He has visited Amoy twice since he first came to Formosa, but as his friends and relations have all died off, he thinks of permanently settling here. He does not suffer from any inconvenience whatever when pulling, even long distances, in the gig, nor does he find that he is unfit for considerable exertion of a pedestrian kind, and often accompanies his master shooting, carrying a tolerable weight all the time. Is quite willing to allow me to make the experiments explained to him, and will be glad if he can be cured of his tendency to "ague" altogether, as "then he would be quite well." There is nothing abnormal to be seen about his scrotum or legs, and in every way he appears an athletic, well developed man.

At the time I wrote, enlargement of two right inguinal glands was observed, but he told me then, and I afterwards found it to be the case, that other glands occasionally swelled. This generally happened just before and during his attacks of lymphatic fever. Gradually, however, he has lost all tendency to these attacks, having had no fever of any sort for the last three years, and the glandular enlargements have quite disappeared. He has, I regret to say, become an opium-smoker, but to this indulgence he strenuously attributes the absence of lymph fever. Should this latter be a manifestation of inflammatory disturbance in the way I have suggested, it is possible the narcotic might, in the absence of increased or increasing excitants, keep down a tendency formerly encouraged by residence in a locality where fresh incentives were being constantly received. There can be no doubt that, though still vigorous, the average number of filariæ found in his blood at any given time is less than it was six years ago.

His general health keeps good, and he works hard now as a mason's assistant. He has no signs anywhere of tissue overgrowth, and I think has good reason to hope that he is getting over the liability to this lesion. Being removed from the district where the filariæ sanguinis hominis are abundant and constantly being propagated, to one where the cycle of genesis is abruptly interfered with, as seems to be the case in Formosa, he is freed from the risk of increased invasion, with its consequences. The existing worm or worms, which had located

themselves before he left the mainland, are situated in parts indifferent to their presence, although parasites not originally so placed did commence their irritative action, as his former febrile seizures show, and had he remained in a district where the number of patents could have been added to, some of these fresh arrivals would in like manner have themselves taken on a morbid state, and so directly assisted in intensifying the irritative action set up in the parts, or by further debilitating the original offender indirectly contribute to this result. No such additional incitement being available, the affected worm or worms, favoured by the comparative quietude, have recovered their health and ceased to be undue incentives to hyperplasmic exudation.

It may be that the mere presence of parasites in numbers is all that is required to start abnormal action, and unless plurality is possible, man can within these limits act as hospitable host without discomfort to himself or detriment to his guest. After a time we must suppose the filaria dies and is carried away. Should her decease ensue in the course of nature, and not be brought about by any violently stimulative process, we can assume that the remains, like much other apparently irritative matter, are quickly and unostentatiously removed by the absorbents. If these surmises be correct, they would tend to account for the fact that removal from place to place, and especially out of the area where filarially-induced elephantiasis is prevalent (so strongly insisted on by Sir J. FARRER), is likely to be beneficial, while, as helping to control both tissue greed and its effects, that which tends to limit plasma supply must also be adopted in further treatment of the case. On the foregoing hypotheses, the first and most essential step in treatment is to secure immunity from further infection. Unfortunately, in those countries where these diseases abound the people are so situated that in the majority of instances were cure to depend on removal from one place to another, the advice would be apt to coincide with the proverbial "beef and wine" prescription for the starving pauper. Happily, as far as filariae are concerned, we have other means for debarring their further access, namely, by filtering and boiling all water drunk by the patient. With reference to the cure or amelioration of mischief already set up, looking at the vast amount of testimony there is in favour of controlling blood supply, and, as far as I am at present concerned, its seeming concurrence with the theories now submitted, it would appear that temporary or permanent obstruction of some main source is the primary remedy suggesting itself.

Notwithstanding the weight of opinion favourable to deligation of arteries, and the apparently excellent results I have myself seen follow such treatment in the early part of my medical career, when placed in a position affording great opportunities for studying elephantiasis, I am bound to admit that, theoretically as well as practically, I believe all that is required can be gained by limited pressure applied occasionally to the main vessel and more permanently to the affected part. In this hospital, though elephantiasis as a severe and chronic condition arising from *filaria sanguinis hominis* is unknown, a condition pathologically the same, following, or concomitant with, ulcers or wounds, is sometimes seen, and I have always found MARTIN'S rubber bandages, together with other local and constitutional remedies, effective. With elephantiasis due to *filaria sanguinis hominis* in a district where the parasite flourishes, I can readily imagine such treatment could at best be of only temporary benefit if not combined with means for preventing further infection and modifying existent irritation,

but if so associated, then I think occasional pressure on, say, the femoral, either digital or by tourniquet, together with elastic bandaging and suitable internal remedies, are likely to bring about most satisfactory results. The non-combination of the prophylactic and curative in the East may account for the want of that success which seems so often to have followed arterial ligation in Europe. Even in the West it may be open to discussion whether less extreme measures for carrying out the same principles would not succeed equally well. One is inclined to hesitate before entirely throwing over the theory on which the procedure is based, because an apparently too severe form of practical application has hitherto been adopted, or because it has failed to show sufficiently satisfactory results in cases where circumstances outside the procedure itself have been antagonistic to a fair test of its efficiency. What is now suggested is neither new nor original, especially if one takes the recommendations singly, but should the etiology of elephantiasis be somewhat similar to what I have attempted to sketch, then firmer hopes of success, based on strict conjunction of the protective and remedial methods, may be conceived in places where the results have hitherto differed from those reported by some European observers. While arriving, though by different reasoning, at the same indications for treatment as those Dr MANSON more than hints at, I do not quite share his despondency as to permanent benefit in cases of advanced elephantiasis of the extremities. With advanced elephantiasis scroti, even supposing we could readily apply means for regulating blood supply, little or nothing is to be gained by rejecting the usual treatment. FAYRER and MANSON have taught us with what ease and safety amputation may be accomplished, and on grounds of convenience and comfort the operation undoubtedly offers the highest attraction. To prevent recurrence, prophylactic measures would certainly be required, and if the flaps showed a tendency to take on diseased action, then it is possible that resort to pressure, etc., might overcome liability to relapse, and complete the cure.

I may mention in conclusion that Dr ROUTH's statement and experience has so struck me that I have determined on trying a further set of experiments with monkeys, to see whether by injecting nitrite of amyl I could induce artificially a similar result to that Dr ROUTH mentioned having seen follow its accidental insertion under the skin. I am the more tempted to do this as there appears something very analogous in the action of the drug on the vascular system to that brought about by the *filaria sanguinis hominis* or other excitants when playing a similar part. The effects of both are alike—vascular congestion and consequent plasma exudation. The relationship is as striking as it is interesting, and if the asserted result of amyl injection accord with further investigation, it seems to me that the evidence in favour of the theory I have suggested as to the etiology of elephantiasis and its allies will have been even more effectively strengthened than by Dr ROUTH's single observation, curious and important as this is.

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## DR W W MYERS'S REPORT ON THE HEALTH OF TAKOW AND TAIWAN-FU (ANPING)

For the Two and a Half Years ended 30th September 1886

DURING the period under review, notwithstanding that it includes the six months we were blockaded by the French, the general health of the community has been very satisfactory. Among residents there have been three deaths, one adult and two infants, as follows —

1 — 1884.	Male resident	Enthetic disease
2 — „	„ „ (infant)	Marasmus
3 — 1885	„ „ ( „ )	Morbus cereleus *

Of non-residents, one male was brought here dead, and was buried in the cemetery. From what I knew of the man's case, together with the statements as to the symptoms preceeding death, I believe this to have been consequent on hepatic abscess bursting into the peritoneum.

No 1 exhibited but few general symptoms until about 10 days before death, when signs of cerebral lesion were developed. One remarkable peculiarity about the case, however, was that while feeling generally well, and functions apparently normal, the patient complained of subjective sensations of heat, quite out of keeping with the actual atmospheric conditions. To relieve this he soaked in cold water during the greater part of the afternoon, and slept naked on his verandah all night. He positively refused to admit that he was ill, and went about his duties as usual, including some severe mental labour. At last violent vomiting and purging set in, with progressive loss of consciousness, ending in coma and death. At the post-mortem, gummatous deposits were found in the liver, and other lesions connected with these, which accounted for the result.

No 3 was an infant about 14 days old, born apparently strong and well, and up to a few hours before its death thought to be in excellent health. It fell asleep about 9 P.M., but sleep gradually deepened into coma, and death took place at 5 A.M.

*Cholera* — Towards the close of the short epidemic which broke out at the termination of the French affair, I was called to see a man apparently in extremis, and entreated to do something. He was vomiting constantly, and the bowels discharging the characteristic alkaline fluid. Being baffled in my attempts at getting him to retain anything, and looking on the case as desperate, I ventured to inject into the small intestine, as near its origin as I could guess, the following mixture —

Acid sulph dil	℥xx
Tr croci	℥xv
Aquæ	ad ℥i

I used the finest needle of the aspirator, fixed to a syringe prepared for the occasion, and gave in all three injections. After this the dejections showed a decidedly acid reaction. The usual remedies, such as friction, heat, subcutaneous injection of ether, etc., were simultaneously applied, and indeed had been used prior to my giving the abdominal injection.

Whether as coincidence or consequence I cannot say, even if one could venture any surmise on the result of a single case, but at or about this time a sudden change for the better set in, and from then onwards recovery was rapid.

\* Certified by medical attendant.

It might be thought that the likelihood of injecting the peritoneal cavity was greater than that of getting into the gut, but the distended condition of the latter encouraged me to make the attempt, which, so far as the operation went, was, I am sure, successfully accomplished.

I was not able to get hold of another case, as the epidemic, never very extended, ceased immediately afterwards. I can, therefore, only narrate my experience for what it may be thought worth. I may mention that I added the saffron on account of its asserted effect on the comma-bacillus.

*Malaria*.—Under this heading I would desire to call attention to one or two varieties, which are certainly worthy of notice.

1.—A very common form, met with both here and in the Taiwan-fu hospital, presents at first sight the appearance of *tuberculosis*. The patient says that he comes from a district where malarious fevers are common, he has himself suffered for long from fever and ague. After a time (and if from the northern districts, it is generally noticed from the commencement) the fever has been the most marked manifestation, the cold stage gradually lessening in duration until it has almost ceased to be noticeable. Soon unsteadiness of gait is perceptible, and this may go on until complete loss of power in the lower extremities is arrived at. If told to shut his eyes he staggers, knee-jerk is absent, though he retains considerable power in his flexor muscles. He denies the occurrence of "lightning pains," while the duration of the affection from onset to its extreme height is comprehended within a few weeks or, at most, months. Put on large doses of quinine, with tonics and cod-liver oil, recovery is generally rapid. It may be thought by those holding views as to the malarious origin of *beriberi* that this is but a variety of that disease, but although I have carefully watched several cases, I have been unable to discover anything which would warrant me in supporting such a conjecture. If we accept *AFANASSIEV's* views as to the migration of distended lymph corpuscles forming emboli in the vessels of the brain, and thus leading to lesions there, it is quite possible that similar effects may be produced in the substance of the spinal cord, which, as in the cerebral cases quoted by that writer, give way to quinine.

2.—Another very general and not unimportant variety of malarial affection is a more or less chronic albuminuria, which, when accompanied by oedema or ascites, as is not infrequently the case, may lead to misapprehension. The urine is albuminous, from the merest trace up to complete coagulability, casts are present, but with all this one does not find many of those symptoms generally associated with Bright's disease. Two prominent peculiarities are noticeable, and these are the extreme sensitiveness of the precipitate to slightest excess of nitric acid, and the high specific gravity of the urine, ranging generally from 1018 to 1020. I have repeatedly seen persons in the East whose urine has deposited albumen, and whose cases I have been led to look on as worthy of anxiety, but I have as often been surprised at the continued absence of those manifestations of progressive disease which surely come on in true parenchymatous nephritis. This condition, until late years, I have often been at a loss to account for satisfactorily. Dr GRO HARLEY of London, in his work on diseases of the liver, calls attention to such a condition of urine as I have described, which he names "*hepatic albuminuria*," laying particular stress on the specific gravity as a valuable diagnostic sign, differentiating it from genuine Bright's disease, where the "density is never higher than 1012

or 1015" In this hospital I have on many occasions carefully looked for liver disorganisation in these cases, but cannot say that it has existed to such extent as would warrant my attributing the effects to that cause, whereas full doses of quinine, followed by iron and strychnine tonics, have often brought about a most satisfactory condition both of the general health and the urine

A patient came in from the island of Lambay, exhibiting at first sight the appearance of Bright's disease. He was dropsical, of waxey hue, urine highly albuminous—specific gravity, 1020, and he was generally very ill. He said he had suffered some years ago from fever and ague, and at that time was seldom free from what I can best translate as a state of low fever. His present ailment had, he thought, been coming on for about 18 months or two years. The respiratory and circulatory systems were normal. He perspired freely, and gave no history of any of those symptoms I expected him to enumerate. Under treatment, in which quinine figured largely, he improved rapidly, and though he insisted on leaving while there were still minute traces of albumen, his general state was so satisfactory, and he felt so well, that I could not persuade him to give me fuller opportunity for observation. I have on one or two occasions heard of him, however, and the accounts have always been good. Though this was perhaps the most desperate-looking case on admission, still it serves as a good type of many others.

The absence of cardiac and other characteristic symptoms is a useful diagnostic point in this formidable-looking ailment, the chronicity of which and immediate disconnection from other malarial manifestations distinguish it from that which is often met with as a passing sequela of sthenic disease.

Of late we have heard from all sides of the frequent co-existence of albuminous urine with organically sound kidneys. This has no doubt conveyed its due meed of comfort to many alarmed albuminurics, and it seems to me that, in this part of the world, where residence in more or less malarious districts is the rule, the fact that the much more realistic simulation of a deservedly dread disease is only one of the protean forms of an affection less grave as to its possibilities and perhaps more amenable to treatment, opens a wide portal for hope to anxious patients.

3 The last but not least important phase of malarial manifestation that I desire to call attention to is that known in India as typho-malarial, and elsewhere as the mixed fever of tropical or sub-tropical climates. One peculiarity that we have most to do with here is its restriction to a certain area, comprising the alluvial plain to the north of Takow, and extending from the base of the nearest hills to the coast. Within these limits are included the city and settlement at Anping.

Intermittent fever undoubtedly occurs at Takow, but, as far as my experience goes, is of the ordinary "fever-and-ague" type, sharp while it lasts but soon got over, and fortunately nowadays not often contracted.

With cases from Taiwan-fu, the fever is also intermittent, in fact markedly so, but the adynamic symptoms accompanying it, together with its tenacious and insidious character, stamp the affection as one materially differing from the type met with at the southern port. As to whether both kinds of disease owe their origin to germs originally the same in nature and species, but which eventually differ by reason of further development in favouring media accessible to one but not to the other, or whether the true malarial germ unites with another in producing a hybrid affection, I am unable, in the absence of all opportunity for

pathological research, to offer an opinion, but this I do know, that the fever of which I speak, and which for convenience of description I will call typho-malarial, is remarkably different from anything I have seen before, although at some points it has reminded me of what I once saw a good deal of in Central America, namely, "Colon" or "Chagres" fever. When compared with the ordinary enteric fever of Europe, the resemblance is not only striking but in many instances exact. Indeed, but for the temperature curve one would have no difficulty in at once characterising it as true typhoid, less malignant, perhaps, but still distinctly of the same nature. Insidious in its onslaught, when it fairly seizes a patient, a condition is developed which gives cause for the greatest anxiety. As before remarked, I have only met with cases among the residents at Anping or Taiwan-fu, and if they are wise enough to come beyond the area of infection—*eg*, to Takow—the course of the malady is arrested or materially modified. Even after the disease has set in with full vigour, I do not hesitate to recommend immediate removal to the southern port, and I have invariably found marked improvement follow the change, while with those who do not follow this advice, the affection has run to lengths which have given rise to grave anticipations. The head is a favourite seat of attack, the manifestations there varying from severe periodic neuralgia to raving delirium, according to the acuteness of the seizure.

As a sequela to several cases of the worst form, intelligence has been more or less clouded or affected for some considerable time subsequent to the removal of the patient, and even after apparent convalescence has set in. There is always a great liability to bowel affection, which very often assumes the hæmorrhagic or dysenteric type. If once a patient has fairly got under the influence of the poison, it is apt to hang about him for years, breaking out, even at home, at odd times, not infrequently in winter. The temperature does not often go higher than  $102^{\circ}$  or  $103^{\circ}$ , although I have seen it as high as  $105^{\circ}$ , but in the morning it generally returns to normal or thereabout. In the transitory fever and ague attacks met with at Takow I have frequently seen the temperature rise to  $105^{\circ}$  or  $106^{\circ}$  during the hot stage. Vomiting is not so common in the Anping variety as in the acute Takow form, though sometimes, if the disease has advanced far, and especially if the patient remains where attacked, I have known it come on in a way that materially added to the general anxiety. It is obviously due to cerebral causes, other symptoms of which either precede or immediately follow the manifestation. The delirium is generally of the muttering, semi-conscious type, the patient can be roused to answer rationally, but soon falls off again. I have not met with coma-vigil properly so called. The typhoid eruption is generally seen on the abdomen and arms, coming and going in the usual crops. The stools are of the "peasoup" kind and not infrequently, especially towards the climax, are accompanied by hæmorrhage with mucus. Notwithstanding all this formidable appearance, I have not as yet met with a death among those attacked on shore, though it must be admitted that the list of those who have suffered serious and permanent injury from persistent residence there is now getting large. I am convinced that persons resident in these districts should come south at regular intervals, if only as a prophylactic measure, and if they would reduce the severity of attack to a minimum, they should on any signs of infection leave at once for Takow, where a short stay generally enables them to shake off present bad effects and regain a fairly satisfactory state of health. Those of the northern residents who, for

business or other purposes, make periodic visits to the mainland, keep in good health, but should persistent residence ever become a necessity at Anping or Taiwan-fu, we shall have to reckon upon a much heavier sick return from that port, while the working strength of establishments so placed will have to be calculated with reference to contingencies never previously anticipated in South Formosa. For ladies and children, especially the latter, I imagine the risk of injury would be very great, and indeed I would strongly recommend that, where possible, as in the case of officials bound to reside all the time at Anping, if married they should hesitate before bringing their wives and families to the port, unless their position or duty enabled the latter to live at Takow. As I have mentioned in previous Reports, crews of ships lying in the Anping Roads, never having communicated with the shore, *i.e.*, not having taken in water or been granted leave, exhibit this peculiar type of disease, and in fact all the cases of pernicious fever coming under my notice afloat, occur up there.

It seems difficult to account for this marked malignancy of type in those attacked at Anping (Taiwan-fu). Delightful breezes prevail at all times of the year, which one would think ought to act as diluents and dispersers of the poison, but this is not so, as we have good reason for knowing. The soil at and around the city is of a loose, open nature, and but a few feet below there is a stratum of clay, which no doubt hinders the rapid percolation of surface water,—in fact, favours its collection. Anping is at present all “made ground,” consisting of a very tenacious blue clay. I fancy the latter place suffers, like the shipping, more from its proximity to the districts behind than from any inherent qualities. Practically, however, this does and can make but little difference to those who will suffer from continued residence there. The following extract from TOMMASI CRUDELI’S paper\* bears directly on the subject of telluric influences and how originated —

The production of malaria occurs in districts situated at considerable heights, and it is not necessarily connected with the presence of either marshes, ponds or rivers, nor with the admixture of fresh with sea water, nor with the maceration of hemp and lint, nor with other putrefactive processes in organic substances. It is calculated, approximately, that two thirds of the malarial districts in Italy occur on heights, and even on mountains. Sometimes the surface of these districts is completely dry during summer, but the production of malaria in them goes on just the same, provided they are kept moist below the surface by special conditions of the sub soil, and the air can reach the moist strata by pores or crevices in the surface.

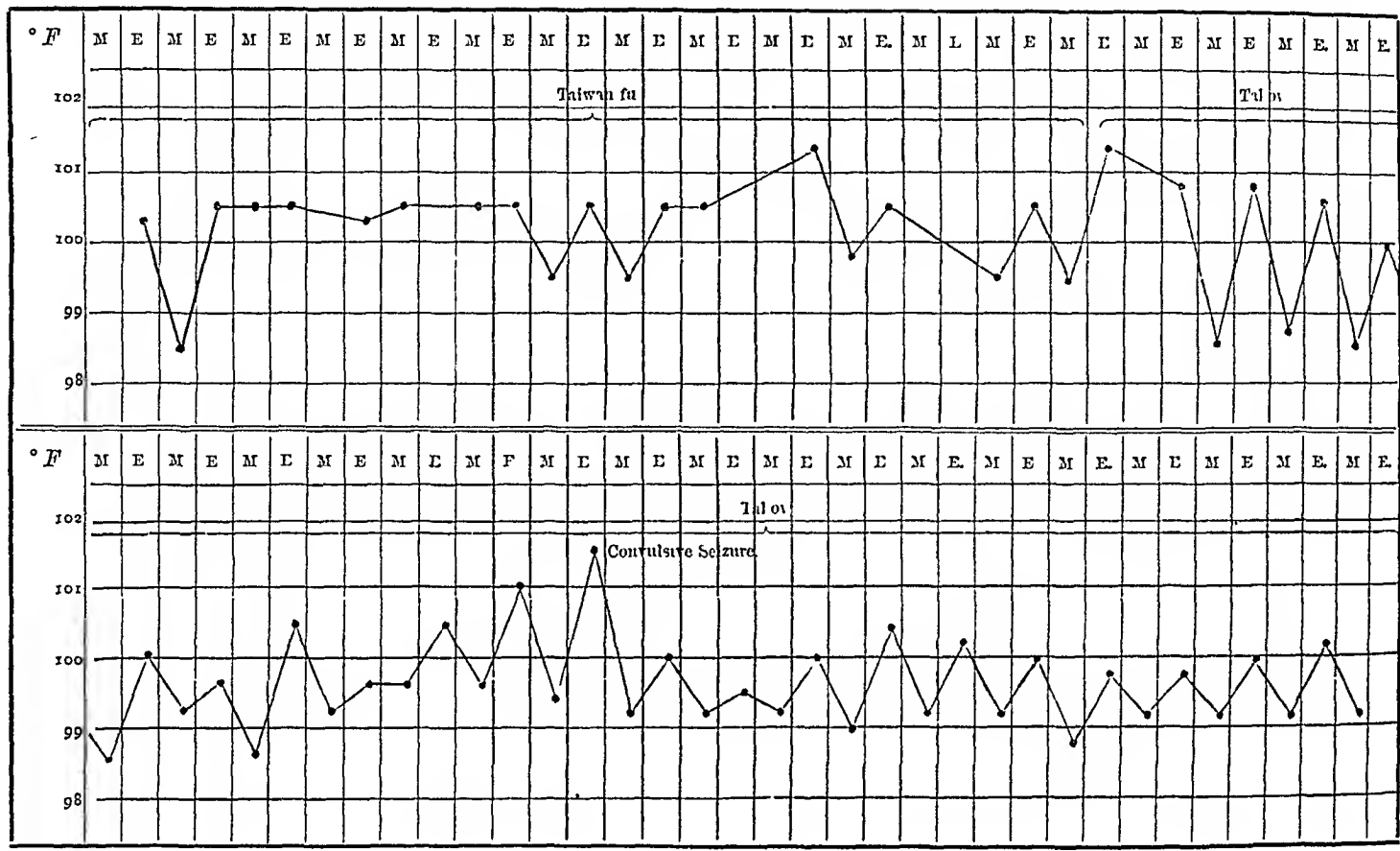
This is the condition of the greater part of the rising ground in the Campagna of Rome.

The action of quinine at first may not be very marked in this variety, still, one feels it is the sheet anchor to be depended on nearly all through, though no doubt pressing symptoms as they arise have to be treated by other remedies, and during convalescence there is decided call for blood and general tonics by a system which is sure to show all the signs of extreme debility.

On the next page is a temperature chart taken from a case of typho malaria occurring in the city. I may mention that, the weather having prevented removal to Takow as soon as was desired, the case showed some most unpleasant phases before change of locality was effected. As soon as this was accomplished, however, matters took a speedy turn for the better, and although there were one or two complications, one especially alarming, of a convulsive nature, convalescence went on steadily.



TEMPERATURE CHART from Case of TYPHO-MALARIAL occurring in TAIWAN-FU, and removed to TAIKOW



“DAVID MANSON” HOSPITAL

Since last report a severe call has been made on the resources of this hospital, which I am glad to say it was equal to, I mean the necessity for attending to the numbers of troops stationed in and around Taikow during the time of the French troubles

Upwards of 4,000 patients passed through the hospital during the year 1884-85, of whom nearly 3,000 were soldiers. The prevailing ailments were those due to over-crowding and exposure, but no epidemic broke out

As we were not actively attacked by the French, there was little or no military surgery required, and indeed under this head the only case calling for special notice was one of an unfortunate cargo boatman, wounded by a fragment of a shell. There was much comminution of bone, and injury to the nerves. In spite of all that could be done, he died of tetanus a week after receiving the wound.

Besides the large amount of aid given to the soldiers attending the hospital, a good deal of camp visiting was accomplished, and advice was given as to the laying out of latrines, and other sanitary precautions for the good of the encampment. Some commandants were willing to do as was suggested, but others were indifferent, still, on the whole, if it did nothing else, the wish to serve, and the work actually done in hospital may have taken part in preserving that excellent *entente* which existed between the foreigners and the people, official, civil and military, during the time of our blockade.

In view of an expected bombardment, splints, bandages and other appliances were ready, and stations out of fire selected for first assistance to the wounded, as well as preparations made for establishing a more permanent hospital in the rear.

In all this the dispenser and other Chinese professed themselves most willing to take part, and I believe that they would not have been found wanting. Happily, however, we scarcely heard a hostile gun fired, and but for our isolation from the outer world we might have been anywhere but on the scene of military operations. My colleague at Taiwan-fu had his hands equally full, and somewhat more actual military work, as those of the wounded, whose state permitted them to escape from the Pescadores, landed at Taiwan. As may be supposed, the difficulties of transit were not favourable to the escape of desperately wounded persons, and so I understood no case of very particular interest or difficulty presented itself. Still, the hospital all the time was doing good work, and had a most beneficial effect in engendering and keeping up the good feeling which existed.

Dr ANDERSON also made all necessary arrangements for assisting the wounded in the event of an action taking place, and he too was, I am told, equally well supported by his native assistants, who agreed to stand by him. At the termination of the blockade His Excellency the Taot'ai, besides giving an extra donation of \$100 to each hospital, sent a lot of medicines and surgical appliances, which seemed to have been hoarded in his yamén, for distribution between the two institutions.

Last year we have had 3,460 patients, and although most of the troops are removed, still there are a sufficient number in the neighbourhood to add considerably to the calls on the hospital, now its ordinary patients from the surrounding districts have once more commenced to come in. Of course, during all the time of the French scare we saw little or nothing of these, which, considering the large influx of soldiery, was perhaps rather fortunate.

*Medical School* —I can now announce with great pleasure the accomplishment of the first stage of the educational project set forth in my last paper. At the end of May 1886 the two students, LI TSUN-FAN and CHANG CHING-KAI, presented themselves before a medical board in Hongkong for examination in anatomy, physiology, organic chemistry and elementary surgery. After an examination extending over three days, they were declared to have passed "very creditably," LI obtaining 74.6 per cent (he got 90 per cent in anatomy), and CHANG 70.5 per cent of the maximum obtainable marks. (The latter scored 85 per cent in chemistry.)

The board was constituted as follows —

Deputy Surgeon General HUNGERFORD, P M O

Staff Surgeon PRESTON, R N

PATRICK MANSON, M D, LL D

Colonel Surgeon P B C AYRES

C GERLACH, M D (German)

WM YOUNG, M D, C M, etc

Ho KAI, M B, C M, M R C S (Chinese)

*President*

} Anatomy

} Surgery

} Chemistry and Physiology

A copy of the papers set on each subject is appended. His Excellency the Acting Governor kindly placed the Legislative Council Chambers at the disposal of the examiners for the oral, which was conducted in the same way as at home, and with the aid of the model, bones, plates, etc., was as practical as possible. The candidates were separately examined for 20 minutes on each subject.

His Excellency the Acting Governor further presented the certificates to the candidates in the main hall of the Government Central School, in the presence of several of the leading government officials and members of the community, foreign and native. The press and the citizens took the matter up warmly, the latter, afterwards, coming forward most handsomely in helping to support the lads during their further course of study for the final diploma. It is now proposed that the next examination be held, about 17 months hence, at Shanghai, when the students will have completed their full curriculum, extending in all over four years. I hope to secure similar assistance from the profession at that port when in due course I appeal for kindly aid in conducting the examinations.

## DAVID MANSON MEMORIAL HOSPITAL and MEDICAL SCHOOL

*First Professional Examination*

## ANATOMY

May 13th 10 A M to 2 P M

- 1 Enumerate the foramina of the temporal bone and the structures they transmit
- 2 Describe the knee-joint, its cartilages, ligaments and synovial membranes
- 3 Enumerate the muscles moving the shoulder-joint, their origins, insertions and nerve supply
- 4 Enumerate the extrinsic muscles of the eye, their origins, insertions and nerve supply
- 5 Enumerate the structures in the anterior triangle of the neck, and their relations
- 6 Describe the pudic (sometimes called internal pudic) artery, its origin, course, termination and relations
- 7 What nerves supply the tongue, heart, diaphragm and hand?
- 8 Describe the kidney, its size, shape, structure and vascular supply
- 9 Describe the popliteal space, its boundaries, included structures and their relations
- 10 Give the structures forming the root of the lungs on both sides, and their relations

*N B*—Six questions only to be attempted Four hours allowed

## CHEMISTRY

May 13th 3 P M to 6 P M

- 1 Give the chemical formulæ of the iodide, bromide, chloride, chlorate, nitrite, nitrate, cyanide, acetate and hydrate of—ammonium, potassium, sodium and silver
- 2 Describe an acid and an alkali
- 3 Describe the physical and chemical properties of water
- 4 What weight of oxygen can be got from 20 pounds of potassic chlorate?
- 5 How is chlorine prepared? State its action on—
  - (a) Colouring matter,
  - (b) Metals,
  - (c) The flame of a candle
- 6 If a solution of argentic nitrate be added to a solution of sodic chloride, what is the nature and colour of the deposit? Give the equation
- 7 Name the principal compounds of iron and those of mercury

*N B*—All the questions may be attempted Three hours allowed

## SURGERY

May 14th 10 A M to 2 P M

- 1 Describe the various tumours occurring in bone, and their structure
- 2 Describe the different kinds of aneurism, and objects of treatment
- 3 Describe hydrocele, scrotal hernia, hæmatocoele and varicocele
- 4 What consequences may attend fracture of the ribs, and how are they produced?
- 5 What is erysipelas, and describe the different kinds?
- 6 What is caries, and what is necrosis?
- 7 Name and describe the different forms of inflammation of the joints
- 8 What is gangrene, and name the different forms and causes?
- 9 Name the dislocations of the shoulder-joint, diagnosis and how reduced
- 10 What are the different kinds of cancer, and name the parts of the body where they occur?
- 11 Describe the process of healing in bone
- 12 Give the principal fractures involving the elbow-joint, and state how diagnosed from dislocation

*N B*—No more than 10 questions to be attempted Time allowed, four hours

## PHYSIOLOGY

3 P M to 6 P M

- 1 Describe the skin and its appendages, with their various functions
- 2 Give the names of the muscles that are concerned in—
  - (a) Ordinary respiration,
  - (b) Extraordinary respiration,
 and state the changes in the blood after each act
- 3 What is peculiar in the portal circulation and that of the kidney?
- 4 What do you understand by the terms "secretion" and "excretion"? Name the chief secretive and excretive organs
- 5 What are the functions of the liver? and give the composition of bile and its use
- 6 Give the functions of the kidney and the composition of urine
- 7 What is the deep origin, course and distribution of the optic nerve, and how do you account for the phenomenon of single vision with two eyes?

*N B*—All questions to be attempted Time allowed, three hours

The following are the regulations under which it is proposed to admit candidates to examination for the certificate granted by this hospital —

1 No student can commence his medical studies unless he is familiar with English, reading and understanding it thoroughly, and has otherwise received a fair education in arithmetic and other branches of elementary education as understood in Western countries

2 Before being admitted to the first professional examination every student must have studied the following four subjects, namely, anatomy, inorganic chemistry, physiology and elementary surgery during two full years, in some hospital recognised by the board of examiners, under a legally qualified practitioner, who must certify that he has taught all these subjects practically and systematically during the aforesaid period

3 On passing the primary professional examination the student will be required to undergo a further course of study for two years in some hospital recognised by the board of examiners, under a legally qualified practitioner, who must certify that the student has been systematically and practically instructed in practice of medicine, pharmacy and therapeutics, clinical medicine, clinical surgery and midwifery for two full years after passing his first professional examination

4 On production of this certificate and also one of his identity with the candidate who passed the first professional examination he will be admitted to the final examination

5 On passing his final examination the candidate will be presented with a diploma, signed by all the members of both boards of examiners

6 No candidate rejected at one examination can again present himself until he has studied one full year, at some hospital recognised by the board of examiners, all the subjects required for the examination at which he has failed

7 Any candidate found copying, or who may be adjudged by the board of examiners to have otherwise misbehaved, will be at once rejected and debarred from again presenting himself for examination for such time as the board of examiners may direct, and from their decision there can be no appeal

8 The examinations will be held in China and Hongkong, and every candidate must pass one examination at a port in China, and the other at Hongkong

9 \* \* \* \* \*

10 No teacher or other person interested as such in any candidate's acquirements may sit on an examining board before which such candidate presents himself, or have any voice in such candidate's examination or its results

11 The board of examiners for each division must consist of at least six legally qualified practitioners—including the president—representing two or more nationalities

12 The members of the board of examiners for the first division having certified that a candidate has passed the examination for which they are responsible, the diploma shall be returned to the hospital or other approved guardianship, and in no case be removed from this custody until such time as the candidate named therein has passed his final, and the latter fact has been attested by the signatures of the final board

The examinations will be conducted both in writing and orally, the candidate being examined, as far as possible, from specimens, plates, preparations or models, for at least 20 minutes on each subject

The foregoing are the regulations under which the examinations in Hongkong were conducted and by which the present students are governed. Of course they are only put forward tentatively, and though, thus far, have been thought sufficient, are open to such additions or modifications as may hereafter prove necessary. The great object which I assume all interested in the subject will demand is that the professional requirements of the candidates shall be thorough, and that the attestation of this comes from persons whose standing and impartiality render their testimony unassailable

It is to be hoped that in this way men, educated entirely in China, may be obtained whose professional requirements will be above suspicion, while their qualifications may be accepted as equal to those required of the average practitioner in Western countries

It may seem that these arrangements are too elaborate for the number of students at present under instruction, but to this I would reply that everything must have a beginning, and that at best this is but a private effort, which, insignificant as it may appear, yet considerably taxes the ability of those who have assisted in originating it. It must be remembered that these lads have already drawn on their parents for support during seven or eight years while studying English, and that the extra four years now required

are quite outside of any calculations which had been made by those who anticipated that at the end of the Hongkong school course their sons would at least have been able to support themselves. As it is now, to get our qualification, they, or any other aspirants, must have been engaged in study for 12 years at least. Thus, were it not for the support which the hospital gave during the first two years and that which the generosity of the Hongkong community now affords for the remainder of their curriculum, much as these lads desire it they simply could not have gone on. No doubt in time, if the career holds out sufficient inducement, students will come forward who are able and willing to relieve the school of the burden cast on it. But this will take time and a higher prestige than we are at present able to confer.

I am glad to be able to report that a well-to-do Chinese gentleman in Hongkong was so taken with the idea that he has sent his son, a most promising student, to study, paying all expenses for board, clothing, etc. To show what can be done two students are as good as 200, although the latter number would certainly be more encouraging as to the permanency of the undertaking. If fortunate enough in convincing others of this, I have no fears as to such a supply of material as will satisfy the most captious critic.

Should this scheme assume larger proportions, it may be thought that Formosa is a somewhat out-of-the-way place for such an establishment, and although I must admit that location in a less isolated spot would be more agreeable, still I am bound to mention that my experience tends to strongly support its selection, by reason of that very isolation with its consequent absence of outside attractions so apt to tempt young students from their work. If they do not study, life here would be very monotonous, but even supposing their characteristic assiduity reduced this risk to a minimum, I still think from what I have seen that the advantages indicated point to the advisability of either adhering to this place, or, if another is desired, choosing one presenting similar local inducements to uninterrupted application.

The certificate and diploma referred to in the above account are parchment documents, bearing the seal of the hospital. They attest respectively —

1st (Form No 1) Fulfilment of the required periods of study in the DAVID MANSON Memorial Hospital. This is signed by the honorary surgeon and instructor, and is in English.

2nd (Form No 2) Passing of the first professional examination. This is signed by the presiding examiner and countersigned by the honorary surgeon and instructor. It is in English and Chinese, and sets forth that holding it in no way authorises the bearer to practise medicine.

3rd (Form No 3) Passing of the final professional examination. This is the diploma, and is signed by the members of both boards of examiners, and countersigned by the honorary surgeon and instructor. To it a photograph of the successful candidate, stamped with the hospital seal, is attached. It is in English, Latin and Chinese. It is endorsed in English and Chinese with a notice setting forth the conditions of authenticity of diplomas purporting to issue from the hospital, and giving a list of the persons who up to date have succeeded in obtaining the licence. All this is further authenticated by the candidate's signature, his thumb mark, and the signatures of the members of the hospital committee.

We have not had our usual visits from the aborigines for two or three years. No doubt the French troubles first interfered, and afterwards the strained relations which exist with the Chinese, and consequent war-like outbursts, account for this. Apropos of these people it may be well to mention an incident that occurred two months ago, and which is interesting as throwing light on the way the "savages" got into Formosa originally —

Five or six natives of the Philippines, including a woman and her child, were crossing from one small island to the other in a very frail looking dugout, when they were blown out to sea, and according to their account were 26 days making the passage to Formosa, during 13 of which they were without food or water. They landed at a port to the north of Taiwan fu, and although every kindness was shown

them by the officials and people, one, an old man, succumbed soon after getting ashore. The rest were sent on to Taiwan fu, where they were kindly, almost tenderly, treated by His Excellency the Taot'ai, given as much food as they required, clothed and handed a present of money on leaving by a steamer for their homes. Strange to say, notwithstanding the undoubted privations from want of food and exposure all must have suffered, the child, an infant at the breast, soon got over its troubles, and when it went away was in an apparently thriving state.

The conduct of the Chinese all through reflects the greatest credit on their humanity, and may be favourably remembered along with the manner in which they behaved to prisoners taken in the late troubles, who were kindly treated as guests, the greatest consideration being shown for their comfort and wants. This speaks volumes for the new departure which was then instituted, and is apparently being kept up by this great and progressing nation.

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## DR A RENNIE'S REPORT ON THE HEALTH OF TAMSUI AND KELUNG

For the Half-year ended 30th September 1886

During the period under review the foreign community has suffered from the prevalence of malarial fever. Compared with the corresponding period of the preceding few years, the number of patients sick from this cause has been considerably above the average.

With regard to temperature, rainfall and other atmospheric conditions, the season compares favourably with previous years. During June the temperature was rather low and the rainfall considerable. In the beginning of July one or two cases of malarial fever came under treatment, and the number steadily increased until the first week of August, when one-half of the residents of the port were sick at one time. The temperature was high, and warm north-easterly winds prevailing, but, fortunately, when matters had got to the worst, the conditions were suddenly altered by the occurrence of a slight typhoon, the wind shifted to the south-west, the temperature fell, and in most cases convalescence was at once established. After a few days the temperature again rose, but the health of the community remained good until the beginning of September, when a transition took place to cooler weather. This change was rather sudden. Though a fairly equable temperature prevailed during the day, the thermometer dropped considerably at night and especially in the early morning, and no doubt chills so received formed the predisposing cause, at least, patients now attacked complained for a day or two previously of catarrhal symptoms, such as cold in the head, sneezing, lachrymation, and, when the fever was established, of rheumatic pains. Towards the end of the month the weather became cool and bracing and no fresh cases were reported amongst foreigners.

The same individuals had several attacks during the summer, but with the exception of two cases of remittent fever, all the other cases were of comparatively short duration and of an intermittent type, usually tertian. Even in intermittent cases it was exceptional for the cold or ague stage to be present, in fact, out of 21 cases I found it present in only two. The patient complained at most of a chilly feeling in the back, immediately succeeded by violent heat and headache, with vomiting of food and afterwards of bile. One of the remittent cases occurred at Kelung. I happened to be present when the attack commenced, and found that, without any preliminary symptoms, the temperature rose in four hours from normal to  $104^{\circ} 5$ . During the 11 days the fever lasted there were regular morning remissions of  $2^{\circ}$ . Finding at the end of 10 days that the patient was extremely weak and improvement doubtful, we got him removed to Tamsui, where convalescence at once set in. Ten days afterwards he had a relapse in Amoy, accompanied by obstinate diarrhoea.

The natives suffered severely from the fever, especially in August and September, not only in this neighbourhood but, I am informed, throughout the northern part of the island. The number attacked was unusually high, while fatal cases have proved of very short duration.

One can scarcely account for the high rate of mortality among them from this cause. Whether it is that their dwellings are as a rule more damp and insanitary, or the lines of treatment too lowering according to Western notions, or that the vital resistance to disease in general is less strong than in European races, it is difficult to say. I am inclined to think that, making due allowance for these factors, the race as a whole is more susceptible to and less able to resist the influence of the malarial poison.

From the fact that the Chinaman bears pain so well, readily undergoing without wincing such acutely painful operations as uidectomy, extraction of cataract, etc., one would on first thoughts naturally conclude that he would form a good subject for withstanding an attack of any sickness. But insensibility to pain may really imply deficiency of nerve energy. Pain may be well borne from two widely different causes. There is the pain borne with stoical indifference because the subject is pretty much insensible to it, and there is the pain acutely felt but endured with moral courage from a recognition of its expediency and with a strong effort of the will. The nervous system in the former case responds less keenly to stimuli, a condition more likely to obtain in the man who subsists on a diet largely carbonaceous but well adapted to the severe manual labour by which he earns a livelihood, than in the man who can afford to feed on substances more rich in those elements that go to the nutrition of the nervous and vascular systems. Thus, in the course of a severe attack of fever, the energy of the native gets sooner exhausted, often failing at the critical period even with the assistance of stimulants, while then it is that the superior staying power of the European manifests itself. At all events, taking two cases of equal severity, it is surprising how soon symptoms of prostration appear in the former as compared with the latter. It is by no means uncommon for a healthy native to succumb to an attack of fever in the comparatively short space of three or four days, death being preceded by low delirium, muscular tremblings and other adynamic symptoms. The period of remission is that of greatest danger, when the profuse sweats, coldness of the extremities and anxiety indicate a sinking of the vital powers from which the patient may not rally. Even in those recovering from an attack of this disease, convalescence is extremely tardy, for days the dry, brown tongue will persist with refusal of food and stimulants. Doubtless the powerful influence of the mind over the body is an element that largely tends to the fatal issue of some of these cases. The patient, as is not infrequent with Asiatic races swayed by superstitious notions, will often take a gloomy view of his condition, and from the outset decide for the worst instead of aiding recovery by hopefully looking for a favourable issue.

The treatment adopted by the native doctors is, as a rule, lowering, consisting in the administration of sudorifics, pricking the pit of the stomach, and, when collapse is threatened, violently pinching the skin to excite reaction. Stimulants even at this stage they hold to be contra-indicated. Many of the laity are now recognising the value of quinine.

It is worthy of note that within the past two or three years the prevalence of the disease in this locality has increased. From the fact that the cultivation of fresh land is receding further inland, and the physical conditions in general remain unaltered, one would naturally look for improvement in this respect.

From the admission book of the MACKAY Hospital here I gather the following statistics. I take the number of fresh admissions of malarial fever cases for the three months of July,



August and September in each year, and give the per-centage relatively to the number of fresh admissions of all diseases for the corresponding period of the year —

Year	Total number of admissions for July, August and September	Total of admissions for fever during July, August and September	Per-centage
1882	486	36	7 4
1883	617	40	6 4
1884	629	81	12 8
1885	648	275	42 4
1886	1,273	485	38 1

Making due allowance for the fact that in the last year or two the number of soldiers treated for fever has been slightly out of proportion to the number treated for other diseases, and even allowing a slight margin for the possibility that the treatment of malarial fever by the foreigner is more quickly finding favour in the eyes of the native than that of other ailments, there still remains among the stationary population a large increase of the disease to be accounted for. It will be seen that the increase has taken place from 1883 onwards. In October 1884 the bombardment and attempted capture of the port by the French occurred. Prior to this event, with a view to repel the invasion, the Chinese threw up long lines of earthworks, running in a semicircular direction between the sea-shore and the foreign settlement, and distant from the latter about 450 yards. Up to the present time these have gradually extended so that they now cover a large area of what was formerly unoccupied ground. That the freshly upturned soil forms a highly fertile source for the dissemination of the poison, especially to residents in the more immediate neighbourhood, is highly probable.

In the malarial districts of the East and West Indies it is a well recognised fact that the miasm is carried for long distances by a wind blowing over a malaria-producing soil, while some authorities state that when favoured by ravines and hot currents of air it may even ascend a mountain side to a height of 2,000 or 3,000 feet. Separated by a hollow from the foreign settlement, the earthworks occupy in most of their extent a situation more elevated. The unhealthy nature of the situation has been forcibly illustrated by the enormous mortality of the soldiers employed in their erection. During July and August of the present year the death rate was said to average four or five a day, and this out of a total strength not exceeding 1,500 men, many of whom when landed a month or two previously were in good health and of average physique. Complications such as diarrhoea or dysentery were exceptional, in almost every case I saw, obstinate constipation was the rule, not infrequently of five or more days' duration. In fatal cases the disease ran a short course, often hastened by carelessness on the part of the patient, who, when severely attacked, would lie down by the wayside exposed to the rays of the sun, while others, during the heat of the night, would crawl from their huts to seek relief in the cooler but not less injurious atmosphere outside.

Another fact that points to the probability of these earthworks exercising an injurious influence on the health of the community is the number of cases of fever that have, during the present summer, occurred on board ship. One or two patients would often be found on board a vessel which had lain at anchor outside the bar during the night or early morning, the symptoms

commencing at once, or two or three hours after arrival in port. In some cases the patient had not previously suffered from fever. An officer on board one of the steamers was attacked on three successive visits when nearing the port, even although during this period and for some time previous he had not been on shore. Doubtless in all cases, carelessness in regard to damp clothing, undue exposure to the sun, etc., often induce an attack in one who is subject to the malarial influence.

The treatment is often difficult, owing chiefly to the fact that we have no place to which patients can be removed during the course of the sickness. The whole northern part of the island is more or less malarious, and unfortunately there is in the neighbourhood no healthy house that might be used as a sanatorium. As a consequence the patient has to remain subject to the same influences as produced the attack. No one would expect to treat a typhoid patient with any degree of success so long as he remained exposed to the poisonous effluvia from the soil-pipe which generated the disease. Here, as regards malarial fever, there is no option. A change to a non-malarious district would be invaluable. Even removal from one part of the island to another will often exert a favourable influence in obstinate cases, although the latter spot may be quite as malarious as the former. A parallel circumstance is observed in certain forms of asthma, a man who is a martyr to this affection may lose it entirely in the very place dreaded by a fellow-sufferer. No doubt, if it can be accomplished without fatigue, removal is highly beneficial, especially if the patient is exposed to a sea breeze. The only reliable safeguard seems to be residence in two-storied dwellings. This statement, the truth of which is now generally admitted, is favourably supported by observations confined to this locality during the past summer.

Taking the foreign residences in the three communities of Tamsui, Twatutia and Kelung, in all of which malaria is endemic, there are —

10 one storied dwellings, with 18 adult occupants

11 two storied        „        „        16        „        „

With two exceptions every individual of the former class has suffered from one or more attacks of fever, while among the latter no single case has been reported. The number of fresh arrivals at the port has been about equal in the two classes. In two of the one-storied houses are several children who have almost all been sick from fever. The social position of the occupant does not affect his liability to be attacked. The better situation of his house may to a certain extent favour him, but the fact that no one storied house, whatever its structure and position, whether high or low-lying, has conferred immunity on its inmates is presumptive evidence that such a dwelling is not reliable. From their low-lying position, and situated as they are in the immediate vicinity of paddy fields which lie on a higher level, the quarters of the Out-door Customs Staff render their occupants especially liable to the disease. These have suffered by far most severely both in the present and former seasons. The buildings are in every respect good, but one storied.

Statistics are at the best misleading and especially so when gleaned from such a small field of observation as is here presented, but when it is noted that during a period of several years certain dwellings have secured to their successive occupants immunity from endemic disease, while in others new-comers have with few exceptions been attacked within a few months of arrival, the connexion of events is removed from the region of mere supposition. When one considers the amount of trouble that malarial fever causes, the time the patient is unfitted for business at the very season when his absence can be least spared, and his liability to attacks in

after years and in more favoured places, the proper construction or reconstruction of our houses is under existing conditions a matter not to be lightly overlooked

In every other respect the climate is as healthy as could be desired. No other disease has been reported that could in any way be attributed to climatic causes

Among the natives small-pox and cholera have prevailed as usual, but with slight severity as compared with last year. For the former disease vaccination is being extensively practised by the native doctors. We have one death to record. This occurred at Kelung

On the morning of August 20th a messenger arrived with a letter stating that the Examiner in the Customs Service there had died rather suddenly at 7 o'clock the previous evening. The letter also stated that interment of the body would take place on the day subsequent to death, *i e*, on the same day as the messenger arrived. The following are the symptoms and history of the case as afterwards collected —

On the 14th of August deceased complained of pain in the left breast, and of a tired feeling which he attributed to the great heat. His appetite was bad. The pain, by no means severe, continued until the 16th, when it shifted to his bowels. Being somewhat constipated, deceased took a couple of COCKLE'S pills, and for food a little sago. On the 17th, the pills having acted but slightly, he took a dose of castor oil, and nothing in the way of nourishment but milk and soda water.

On the 18th deceased felt bilious, and being by no means satisfied with the amount of evacuation secured by the aperient medicines previously taken, swallowed a dose of compound senna mixture in the morning and a little quinine in the evening. Took no food but drank soda water.

Up to the morning of the 19th deceased had been performing his usual duties, but at that time, after noting the readings of the thermometers, he returned to bed. He complained that the medicines previously taken had not sufficiently relieved him, and that he still experienced a "feeling of stoppage of the bowels," to relieve which he took two podophyllin pills. During the day he drank a little rice water. At 3 P.M. he went to stool, but it is doubtful whether any motion was passed. Slight bilious vomiting had occurred during the 16th, 17th, 18th and 19th. At 7 P.M. deceased said he felt feverish, and getting out of bed drank half a wineglassful of brandy and water with quinine, almost immediately he threw up his arms, with the exclamation that his stomach was burning, gasped twice for breath and expired. Up to the moment of his death he said he did not feel particularly unwell, and did not think it at all necessary to summon medical aid.

The cause of death from the above symptoms is somewhat obscure. At first sight one would be inclined to suspect irritant poisoning, but the quinine solution from which deceased took his last dose I found to be a solution of quinine in dilute sulphuric acid which I had prepared for him some weeks previously, and which his wife states she has administered to the children since the death of her husband. The history and symptoms point to an abdominal lesion as the cause of death. Two possible lesions are suggested —

1. Intestinal obstruction, terminating by perforation or rupture of some portion of the gastrointestinal tract

2. A vascular tumour of the abdomen, probably aneurism of the abdominal aorta, terminating by rupture of the sac

The former supposition is supported by pain referred to the abdomen, by the feeling of stoppage of the bowels, by the vomiting for four days and ultimate severe abdominal pain, but negatived, I think, for two reasons. (a) the pain and constitutional disturbance were not of such intensity as would be attendant on a case of intestinal obstruction terminating fatally, evinced by the fact that patient could move about to the day of his death, (b) it is highly improbable that perforation of the bowel, in a case presenting so few symptoms of severity, would produce death so suddenly. The patient as a rule lingers for several hours, although cases are on record where death has been instantaneous, shock being produced just as by a blow on the abdomen.

I am inclined to accept the second supposition. The intense burning pain and sudden dissolution quite harmonise with the symptoms occurring on rupture and escape of the contents of an aneurismal tumour. Apart from the possibility that the tumour may have been of sufficient size to cause pressure on the bowel, it is just possible that a certain degree of obstruction may have co-existed. The increased blood pressure from this condition, aggravated by the persistent use of ineffectual purgatives, would undoubtedly favour the fatal result. The deceased, aged 46, had been a remarkably healthy man. When I saw him about two weeks previously he looked so well that the idea of examining him did not suggest itself to me. For the last six years he had not had occasion to consult a medical man. I communicated with the gentleman who last examined him six years ago, but he knew of no physical signs bearing on the matter.

A postmortem examination, however much desired, was impossible. The nine hours requisite to traverse the distance of 32 miles precluded any chance of arrival before interment, which, owing to the hot weather, could not be deferred. In the absence of this solution of the question, the real cause of death must rest conjectural.

Appended is an abstract of the meteorological observations kindly supplied by Mr Harbour Master McINNES —

MONTH	THERMOMETER				BAROMETER		RAIN	
	Highest Reading	Average Highest	Lowest Reading	Average Lowest	Highest	Lowest	No of Days	Rainfall
	°	°	°	°	<i>Inches</i>	<i>Inches</i>		<i>Inches</i>
April	85 0	75 5	56	63 7	30 27	29 88	15	8 78
May	90 0	83 0	57	70 0	30 18	29 84	3	0 82
June	91 0	81 0	60	67 5	30 15	29 58	18	11 89
July	96 5	90 5	74	76 0	30 14	29 76	5	2 19
August	93 0	89 0	71	75 5	30 07	29 41	12	5 93
September	92 0	82 5	63	71 0	30 17	29 79	14	13 93

## DR B S RINGER'S REPORT ON THE HEALTH OF AMOY

For the Year ended 30th September 1886

THE cool and pleasant weather of the winter season of 1885 soon dissipated the various diseases and ailments of the summer, and the Amoy community for the most part again enjoyed excellent health during the 12 months now under review

Three deaths have to be reported, viz, one from alcoholism, one from chronic diarrhoea, and one from aortic disease

The last case terminated suddenly, and at a postmortem examination the aortic valves were found to be incompetent, the cusps being thickened, contracted and somewhat atheromatous in patches. A complete ring of osseous deposit surrounded the aorta immediately above the valve, and was about  $\frac{3}{4}$  of an inch in width, mostly bare of epithelium and formed an unyielding wall to the vessel

Twelve births took place, the presentation in each case being natural

During the summer a considerable number of cases of diarrhoea and some of acute dysentery occurred, which were for the most part amenable to treatment, though a few proved more obstinate. Recovery, however, eventually took place in all. The excellent supply of milk obtainable throughout the year at the dairy here was a most valuable supplementary aid to medical treatment

Malarial fevers were not numerous this year, though one or two serious cases were attended

Boils were very troublesome during the hot months, and one dangerous case of carbuncle in the lower part of the back was treated, the sloughs were long in separating and convalescence was much protracted but was eventually complete. The wound was treated throughout with iodoform in powder and ointment

*Scarlet Fever*—An outbreak of scarlet fever took place towards the end of the year 1885, but was fortunately limited to a small number, and as this is the first instance in which I have treated the disease at this port, and, indeed, as far as I have been able to find out, the first time any record of its occurrence here among foreigners has been made, I purpose tracing the history of its introduction upon this occasion

Towards the end of the summer of 1885, a gentleman with his wife and family left this port for Chefoo, where they spent the autumn. In October the children went to a juvenile party, a few days after which one of the little girls complained of feeling feverish, had sore throat, and was subsequently covered with a red rash which lasted five days, when all the symptoms ceased and the patient became quickly convalescent. From what followed I believe the attack, briefly described to me by the parents as above, to have been a mild case of scarlatina. On the 1st November the family returned to Amoy, and I was called in to see the eldest daughter, who had felt sick and generally miserable during the voyage, and found her very feverish, skin hot and dry, face flushed, tongue covered with white fur, a bright red rash on the legs and body, the throat was very sore, both tonsils being much enlarged and deeply congested, with some patches of viscid mucus adhering to them

Low diet, a simple saline mixture and a gargle of salt and hot water were ordered. The patient passed a somewhat restless night, and in the morning her temperature was  $103^{\circ} 5$  F, pulse 120, but the throat was less painful. Throughout the course of the disease the patient progressed favourably, all the

symptoms gradually disappearing, and on the 9th November she was pronounced convalescent. Desquamation of the skin of the hands took place. No albumen was found in the urine. The tonsils, however, remained enlarged and have continued so on and off to the present day, being easily affected by changes of temperature. Before the end of November, the mother, three more of her children and two young ladies staying in the house all took the disease. The symptoms were for the most part mild.

The most severe and typical case occurred in the person of one of the guests. In this case the temperature rose to  $104^{\circ}$ , the strawberry tongue was well marked, sloughing of both tonsils took place, an abscess formed beneath the angle of the jaw on the left side, which was eventually opened, the patient recovering perfectly, though convalescence was very prolonged.

All the patients recovered, and indeed one or two of the cases were of so mild a character that had I seen either of them separately, without any previous history and with the knowledge that the disease had not appeared, in my experience, here before, I should certainly have hesitated before pronouncing it a case of scarlatina. But the series of cases taken as a whole and the typical characteristics in the one last noted at once remove all shadow of doubt. Certain careful sanitary measures were advised and carried out, and for a time the cases were confined to the numbers before mentioned, and I was of opinion that all probability of the contagion spreading had long since ceased when a circumstance occurred which I am still unable to account for satisfactorily to myself.

On 22nd March 1886, more than three months after the last of the scarlatina cases reported above had become quite convalescent, I was called in to see a lad 12 years old, and on arrival found he had been feverish for several days, and had complained of sore throat. His face was flushed, his skin hot and dry, a bright red rash was visible on the arms, legs and body, particularly well marked at the flexures of the joints, the tongue was covered with a thick white fur in the centre, while the tip and edges were bright red, the fauces were swelled and inflamed, and there was a tender cervical gland on the left side. Temperature,  $101^{\circ}5$ , pulse, 120. The next day the rash was more marked, the left tonsil was ulcerated in several places, and the tongue began to assume the strawberry character. The case was clearly one of scarlatina. It ran a mild course, the temperature was never observed to be over  $102^{\circ}$ . Chlorate of potash was used as a gargle, and the throat healed, the tenderness of the gland disappeared, the rash faded in due time, desquamation commenced on the 29th March, no albumen appeared in the urine, and the patient gradually became convalescent.

Towards the end of April a younger brother took the complaint, the mother being probably the medium of contagion. This case was somewhat more serious than that of the elder brother, the temperature rising to  $103^{\circ}5$  and the pulse to 136, with considerable cerebral excitement, the child wandering a good deal in his conversation and having very restless nights. These conditions passed off, however, in a few days, and on the 12th of May convalescence was complete.

These two boys, with their mother, who had nursed them both throughout their illness, were now carefully isolated from the rest of the family for six weeks. The house being large and having an upper story and the weather being warm, isolation and hygienic measures were easily and most carefully carried out. At the expiration of the allotted time the children and mother again associated with the other children (three in number), and up to the end of September no sign of the disease has appeared either in that family or any other in the community.

Now the point which seems to me somewhat curious is, that the two families in which the outbreak occurred are quite unacquainted with one another and none of the children had ever been known to speak to each other. Also, before the second outbreak fully three months had elapsed without any other case having occurred in any member of the foreign community.

## DR J H LOWRY'S REPORT ON THE HEALTH OF HOIHOW (KIUNGCHOW)

For the Half-year ended 30th September 1886

FROM notes kindly left me by Dr ALDRIDGE, I gather that the health of foreigners resident here has on the whole been satisfactory during the summer, and for the months of August and September I myself can speak, inasmuch as I have not had a single case on the sick list. April seems to have been an unhealthy month, many suffering from malarial fever. One case of remittent diarrhoea occurred, and proved obstinate. One case of dysenteric diarrhoea was also treated.

From what I can learn, the general health of the native population has not been bad. A certain amount of diarrhoea has been prevalent, but not of a fatal nature. There seems to have been an epidemic of chicken-pox among children. Several cases of attempted suicide have been brought to my notice, chiefly opium-poisoning. Dr ALDRIDGE, previous to his departure, treated successfully a coolie, employed at the Custom House, who had taken 2 mace of prepared opium. In the month of May a sampan-man drank a quantity of kerosene oil, with suicidal intent, but eventually recovered.

With the exception of the month of September, severe thunder-squalls, accompanied by heavy rain, have been almost a daily occurrence.

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Custom House by Mr Harbour Master MULLER, for the Six Months ended 30th September. Latitude,  $20^{\circ} 3' 13''$  N, Longitude,  $110^{\circ} 19' 3''$  E

MONTHS	WIND							BAROMETER		THERMO METER		No of Days Fog	No of Days Rain	Rainfall in Inches
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	Highest	Lowest	Highest	Lowest			
							<i>Miles</i>	<i>Inch</i>	<i>Inch</i>	<i>°</i>	<i>°</i>			
April	7	11			12		2	30.15	29.80	89	76	2	1	3.40
May	3	20		1	7		2	30.10	29.81	88	73	1	2	5.70
June	5	13	1		11		2	30.00	29.70	92	79	1	2	5.20
July	1	23			7		2	29.98	29.70	94	79		1	8.40
August		10	2		19		2	29.97	29.69	90	80	1	19	5.40
September	16	2	1	2	9		3	30.10	29.81	87	75		6	1.70

## DR T RENNIE'S REPORT ON THE HEALTH OF FOOCHOW

For the Year ended 30th September 1886

During the year there were few cases of serious illness, and until the close of the twelve months the general health of foreign residents was remarkably good. There were seven births and two deaths.

Of the latter, one was caused by heat apoplexy and the other death was due to chronic pulmonary phthisis.

Throughout the year the diseases most prevalent among the foreign community were of malarial origin. In December, March, April and May there were several cases of intermittent fever. In August and September there were no fewer than 25 cases (about 10 per cent of the foreign community) of malarial remittent fever, besides a few cases of intermittent fever and masked malaria. In December there were three cases of dysentery, and again in August and September there were seven cases of this disease.

In February coryza, bronchial catarrhs and mild cases of muscular rheumatism were very prevalent.

In May two mild cases of typhoid fever were treated, and they were the only cases of this disease met with during the year. In June, July and August diarrhoea was of frequent occurrence. The hot season commenced in July and continued till the end of September, some of the afflicted having as many as three crops of them.

The general type of disease was mild. Malarial fevers, especially in August and September, were of the frank remittent type, lasting about five days, and although during the exacerbation the temperature usually reached 104° or 105° F, there were no serious complications. Quinine by itself had but little influence on the course of the fever, but when combined with salicylic acid proved very efficacious. Diarrhoea was of a most tractable nature, and dysentery readily yielded to the usual treatment by diet and ipecacuanha.

Although the weather was frequently cool and pleasant during the first three months of the period reported on, there was very little cold weather till the middle of January, after this followed six weeks of the coldest weather experienced by the oldest resident. On 30th January the surrounding hills were capped with snow. Frosts at night were frequent, and on the forenoon of 1st February, ice,  $\frac{1}{2}$  inch in thickness, covered the wet portions of the rice fields. Hardy trees and shrubs from warmer climates that had survived many previous winters succumbed to the strong frost. In spring the weather was rainy, and the temperature, as usual, variable. Though the summer the rainfall was heavier than in recent years. Only on a few days did the temperature exceed 90° F, but the atmosphere was unusually damp and muggy. Bright, warm, dry days, tempered by cooling southerly breezes, were very infrequent.



For the following extracts from the Pagoda Anchorage Customs meteorological tables I am indebted to Mr J VON JEZEWSKI, the Tidesurveyor

METEOROLOGICAL TABLE

MONTH	WIND					BAROMETR				THERMOMETER					WEATHER		
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Max	Min	Mean	Averages		No of Days Rain	Rainfall	No of Days Fog
													Wet Bulb	Dry Bulb			
1885						Inch	Inch	Inch.	Inch	°	°	°	°	°		Inch.	
October	17	3	3	6	2	30.290	29.960	30.290	29.950	81	58.0	69.50	66.50	71.00	3	0.41	1
November	16	2	3	6	4	30.648	30.012	30.650	30.052	79	45.0	62.00	59.50	67.50	5	1.03	1
December	18	3	1	6	4	30.656	29.900	30.600	30.010	76	42.0	59.00	53.50	57.50	9	1.37	3
1886																	
January	16	5	1	6	3	30.600	29.942	30.602	30.032	60	35.0	49.00	46.00	51.00	6	1.97	1
February	17	6	1	2	2	30.578	30.018	30.662	30.070	61	31.5	46.25	43.25	47.25	8	2.82	1
March	17	5	3	3	4	30.432	29.820	30.448	29.886	82	39.5	60.75	56.25	62.50	8	3.46	4
April	15	8	2	3	3	30.316	29.910	30.362	29.964	84	50.0	67.00	62.00	65.50	5	5.98	2
May	15	7	4	1	4	30.252	29.850	30.364	29.820	90	58.0	74.00	69.25	75.25	6	4.12	
June	10	6	9	2	5	30.140	29.658	30.142	29.636	91	62.0	76.50	72.00	76.25	9	11.02	
July	6	8	10	5	3	30.084	29.735	30.221	29.820	97	73.0	85.00	78.25	84.75	3	5.00	
August	10	3	11	6	1	30.100	29.394	30.082	29.435	97	69.0	83.00	77.00	82.50		8.58	
September	17	4	2	6	2	30.260	29.856	30.300	29.792	92	63.0	77.50	75.00	77.75	3	2.87	

Thunderstorms commenced early in March and were of frequent occurrence throughout the summer. In the settlement, between the 14th and 18th August, about seven inches of rain fell. On 17th August the river commenced to overflow its banks, and a freshet, unheard of at this season and second in magnitude within a period of 50 years, resulted. Two days after the flood commenced it reached its highest point, just three inches lower than the spring flood of 1877. The surrounding plains were submerged, and many of the houses, both of Europeans and natives, in low-lying parts of the settlement, were flooded. In large portions of the city and its suburbs the flood was so severe as to cause the natives to seek refuge on their housetops. Soon after the freshet reached its highest point it commenced to subside, leaving behind it a coating of mud. Vague reports of much suffering and great loss of life among natives, as the immediate effect of the freshet, were current, but judging from the general unhealthiness and number of deaths that succeeded the inundation, its secondary results would seem to have been by far the more fruitful cause of suffering and loss of life. Early in August, while natives were manuring and stirring up the soil about the roots of their second rice crop, there was as usual some malarial fever among Europeans and natives living in proximity to the paddy fields, but it was not until after the flood had subsided that malarial diseases

became so unusually prevalent among all classes. For a few days after the heavy rainfall the weather was bright and clear, but the atmosphere soon became humid and charged with all sorts of impurities. Effluvia generated from debris left by the flood pervaded the settlement and neighbourhood. Sometimes smells arose from immense quantities of putrid fish and some other almost equally foul-smelling articles that had, after submersion for some days, been scattered over the hills to dry, while in many instances smells proceeded from the graves of recently interred natives which had been either flooded in the valleys or saturated on the hillsides by the heavy rains. That such a condition should have caused much unhealthiness is not to be wondered at. In all probability this state of atmosphere was the cause of heat apoplexy in the case which proved fatal on 1st September and hastened death in the phthisical patient.

The subject of chronic phthisis was a Spanish nun, 23 years of age, who had resided for a little over three years in Foochow. On arrival, there were well-marked signs of disease in the apices of both lungs. Every spring the disease assumed an active form, but became quiescent in summer and winter. In the present year the active spring stage having passed by, the patient was able to perform her usual duties till the end of August, when an acute attack came on, and night sweats, diarrhoea, hectic fever, rapid loss of flesh and strength brought on exhaustion and death on 24th September.

In December an unusually severe case of variola, after revaccination, came under my care.

The patient, a middle aged lady, had, two days prior to the onset of sickness, arrived in a steamer that had come direct from Nagasaki, where small-pox was epidemic. On 10th December illness began with rigors, headache, lumbar pains and vomiting, followed by feverish symptoms which compelled her to go to bed. At noon on 15th when I first saw the patient, she was in a state of stupor. The thermometer registered 105° F in axilla, and during the afternoon, in spite of several doses of quinine and salicylic acid, and tepid sponging, the temperature gradually rose till it reached its highest point, 106° 5, at 7 P.M., when profuse perspiration set in. On the following morning the temperature was 101°, and an eruption of closely-packed papules had come out on the face, hands and wrists. On 17th a discrete eruption appeared on the rest of the body, and temperature had almost become normal. Vesicles began to form on the face, and sore throat, caused by vesicles scattered over the mouth, pharynx and larynx, was complained of. As vesicles appeared on the face and hands, they were punctured, and a solution of nitrate of silver (grs xx and 5i) applied. On the 18th there was headache and increase of fever. On the 19th the face and hands were much swollen, the nares were stuffed up and the throat caused much discomfort. On 21st fever symptoms disappeared, convalescence set in and proved uninterrupted. When the crusts had fallen and desquamation had ceased, there was almost no pitting where the vesicles had been punctured and the solution of nitrate of silver applied. On the patient's left arm there were two well-marked vaccine cicatrices, and she was said to have been revaccinated a short time previously. The patient's maid, a young Englishwoman, having only two indistinct vaccination marks on the left arm, was revaccinated on the morning of 14th December. On the 21st three perfect vesicles had formed, and, although she was the sole nurse during her mistress' illness, she escaped infection.

At the spring races, about the middle of April, one of the riders met with rather a severe accident.

In one of the races the leading pony, under the influence of some sudden fright, rapidly dashed through the rails, breaking its rider's leg against the top of a post. Immediately on breaking through the rails the pony's progress was abruptly arrested by its fore feet getting into a muddy ditch, and this sudden arrest of motion caused the rider, with his broken leg, to perform a somersault before he reached the ground. After the accident he was found lying on his back somewhat under the influence of shock.

After being carried home and clothes removed, it was found that a little below the middle of the leg both bones were broken. The fracture of the tibia was very oblique, the direction being downwards, inwards and forwards. There was considerable displacement of the upper fragment, and the lower portion of the tibia was slightly drawn upwards. The skin, to the extent of a square inch and a half over the lower end of the upper fragment, was bruised and discoloured. On the outer side of the limb, about half an inch higher than the seat of fracture, a wound commenced which ran upwards for about four inches, and through this wound a rounded mass of lacerated muscle protruded. This laceration was in all likelihood produced by the sharp end of the lower piece of tibia while the rider was jerked heels over-head from the pony. Under chloroform the wounds were cleansed with a strong aqueous solution of carbolic acid, the displaced fragments were brought into apposition and the limb placed in NEVILLE'S splints with swing, which, considering the amount of bruising and laceration of the soft parts, seemed the most suitable apparatus. The bruised skin was cleansed and coated over with a little salicylic wool and collodion, and the large flesh wound, after being surrounded with carbolic putty to prevent discharges from passing between the leg and the splints, was dressed with salicylic wool.

The patient was 32 years of age, and had resided in China for nine years. During his residence in the East he had occasionally suffered from diarrhoea, but on the whole had enjoyed good health, and had never, by illness, been confined to bed. At the time of the accident he had diarrhoea, and his digestive organs were by no means in good order. During the first week after the accident he had a mild attack of dysentery, much fever and was very restless. In the course of the next week pus commenced to collect under the collodion, and necessitated its removal. The bruised skin was found to have sloughed, and on being taken away left exposed a splintered portion of the internal surface of the tibia, just above the fracture. Subsequent attacks of disordered digestion and diarrhoea, together with the accession of the warm weather, rendered the healing process slow and prevented a change of apparatus till the beginning of July. Then bony union seemed pretty strong, and after removing some loose fragments of bone the limb was placed in plaster of Paris, in which holes over the sores were made. In the beginning of August, when the plaster of Paris was cut off, the bones were firmly united in excellent position, and healing in the soft parts rapidly followed.

At the winter race meeting in December 1884 an accident in some respects similar to the case just recorded occurred.

The bones of the left leg were broken, about the same site and in the same manner, by being brought violently against the head of a post, but at the time of the accident the soft parts were not injured. It was only after the fractured bones had united that the skin broke and gave exit to some fragments of splintered bone.

The difference in the two accidents was, I think, due to the manner in which the two riders were thrown after their legs had been fractured. In the accident of last spring the mode of fall has been already described, and in the present instance the pony's near thigh caught so firmly on the top of one of the rail-posts that he fell on his right side, shooting his rider off with comparatively little force on the uninjured right side. Delayed union in this case was without doubt due to a low state of vitality, produced previous to the races by starving the body down to a point considerably below the natural average weight—a process very injurious to the system, and not to be lightly undertaken.

Among natives the chief cause of death during the year was cholera. It occurred sporadically in August and September of last year, became epidemic in October and raged with varying degrees of activity until the beginning of December, when it began to decline. By the end of December the epidemic was over, and since then cholera has not been met with. This epidemic is said to have been as fatal as that of 1883, and judging from the cases that came under my observation, the tales of coffin-makers and the number of recent graves on

the hillsides, the reports would seem to have been correct. Although there were many deaths from cholera among native servants in foreign employ, none of the foreign community suffered. On several occasions I heard of natives from the country employed in the settlement, being affected with cholera, rushing off to their homes and letting loose the disease in their respective villages. As an example of this I may quote what occurred in my own household.

A boy, 13 years of age, who had retired to rest in good health on the evening of 8th November, was seized at 5 A.M. on the following day with diarrhoea, nausea and much exhaustion. My head servant, taking the malady to be cholera and dreading the trouble that would befall him should the lad die while under his care, procured a chair and, by 6 A.M., had the sick boy sent off to his home. Previous to departure a hypodermic injection of morphia had been given and he was provided with stimulant cholera-drops. In an hour and a half home was reached. Rice-water vomiting and purging and cramps of the muscles of the extremities followed. At noon the stage of collapse was reached. Strong fever, accompanied by delirium succeeded the collapse stage, and five days from the commencement of illness the boy died. At his home, previous to his arrival, there had been no cholera, but while he was ill and before he died four female inmates of the house were seized with the disease and two of them died after an illness of about six hours' duration.

A mild epidemic of measles occurred in spring, and some cases of mumps were met with in the autumn.

In May I saw two well-marked cases of *bei-bei* in natives of Canton. They were at once sent off to their homes, where, I have since heard, they recovered.

In the beginning of June, in the Church Mission Divinity School, a native died of *bei-bei*.

Deceased had been ill for about six weeks, his chief ailments being præcordial uneasiness with palpitation on exertion, much debility, numbness of lower extremities and general œdema. As he had recovered from a similar illness in the previous hot season he did not think seriously of his present state, but hoped that with some relaxation from study he would soon recover. On the evening of 6th June, however, he suddenly became very ill and died during the night. After this man died it was noticed that 15 students in the same school were suffering from a chronic form of *bei-bei*. Sallow-white chlorotic looking faces, general œdema, numbness down the front of lower ends of thighs and front of legs, hyperæsthesia of the muscles of legs and thighs, tumultuous action of the heart and general languor were the symptoms. All were upwards of 20 years of age. Three had staggering gait in walking, and several of them complained of præcordial uneasiness, palpitation on exertion and dyspnoea. The students were supplied with Epsom salts, to be taken in large doses in the morning, and sent off to their homes in hilly parts up country. Unfortunately the Foochow native hospital was accidentally burned down in May, else we might have seen more of this disease.

While cholera was raging among the natives, cattle plague was epidemic among their cattle. With the symptoms and fatal nature of this bovine malady the people are very familiar. They sometimes call it the "periodical sickness" (時症), because every few years it is very prevalent, but the usual name is the "swollen gall-bladder fever sickness" (脹胆熱症). This latter name is given to the disease because during life pyrexia is a universal symptom, and after death a very much distended gall bladder is the most obvious morbid appearance. In the neighbourhood of Foochow it is the invariable custom among native dairymen and owners of cattle, when this disease appears among their herds, to slaughter animals as they become affected. This they do not with a view to stamp out the disease but to avoid

pecuniary loss The carcass of an animal that has been allowed to die, though consumed by natives as food, realises a very low price, whereas animals that are slaughtered at an early stage bring almost the price of healthy animals Native butchers say that the flesh of animals killed early differs in no respect from the flesh of the healthy Were the custom of killing animals as they become affected universal, epidemics would soon be stopped, but in sparsely populated country districts, whence the native dainties are replenished, it is difficult to dispose of large carcasses at any price, and, as no pecuniary advantage is to be derived from early slaughter, diseased animals are left to die, and the disease allowed to lurk about the country Every autumn it is said to occur sporadically, and occasionally to become epidemic

In the autumn of 1879 I inspected the abdominal viscera of two Australian cows that had been in Foochow for some years, and had just died after a brief illness, in which diarrhoea and exhaustion were said to have been prominent symptoms The gall bladders of both animals were distended with altered bile, their paunches were packed with hard masses of food, and appearances in the intestines, mesenteric glands and spleen led me to think that an analogy existed between the disease and typhoid fever of man

The mortality among Australian cows imported from time to time has been very heavy I have frequently been told of animals dying after a brief illness, of postmortems being held, and of paunches blocked with hardened aliments pronounced the cause of death, but foreign-bred cows readily eat and thrive well on native grasses, and I think that the periodical heavy mortality among cows imported from Australia was due to cattle plague and not to feeding on poisonous or indigestible foods, as some have suggested In 1879 and in 1883 the native dainties were cleared by disease, but although I had heard much of the malady and its symptoms, I saw very little of it until the autumn of 1885

A little over two years ago, in order to procure for the foreign community a supply of pure milk, a foreign dairy was started, and it was, unfortunately, in this establishment, last autumn, that I had an opportunity of observing the symptoms of cattle plague

At the beginning of September 1885 the dairy stock consisted of 12 cows, 1 bull, 9 heifers, 1 calf, all of foreign breed, and 1 native cow with calf—in all 25 animals Four of the cows had been imported from Australia more than four years ago, four had been in Foochow about one year, and the rest were bred here The arrival of some cows from Australia was expected Towards the end of August and in September cattle plague was prevalent in native dainties, and the affected animals were disposed of in the customary way On visiting the foreign dairy on 4th October I saw a large Australian cow (one of the four cows that had been about one year in Foochow) suffering from the disease She had mucopurulent discharge from the nostrils and vagina The conjunctivæ were deeply congested, and a watery discharge was running down the nose from the eyes She looked very ill and dejected The abdomen was very tumid, and she had evidently much abdominal distress Dysenteric evacuations, whose odour pervaded the stable, were frequently passed The evening temperature was 105° Illness was said to have commenced on 25th September with cessation of rumination, loss of appetite, constipation and diminished secretion of milk On 28th September she seemed very ill, and was removed to a stable by herself, and as she could eat no food, was freely drenched with congee Gradually the evacuations became firmer, but contained mucous shreds and were very foetid Appetite began to return, and by 11th October she seemed to be well In November this cow was again attacked, and after an illness of four days died This was an unusual, but, I believe, not an exceptional occurrence The symptoms of her fatal illness were loss of appetite, cessation of rumination, diminished milk secretion, running at eyes and nose, mucopurulent discharge from vagina, intense vital depression, dysenteric purging, and convulsive struggles, ending in

death On the night of 28th September a cow (landed on 10th September from a steamer that had come from Australia *via* Hongkong) died On arrival this animal, though emaciated and fatigued from the long voyage, was said to look healthy She was placed in a stall by the side of the cow that was taken ill on 25th September, took food well and seemed in good health till 26th September, when rumination and appetite ceased On 28th September violent purging set in, and death soon followed After death only the paunch was examined, and as it was found full of hardened food, indigestion was supposed to be the cause of death One of the nine heifers, all of which had been grazing on the hills among the native cattle, was taken ill on 31st September For three days it took no food, was on the third day of illness violently purged, and died the same evening I was afterwards informed that the carcass of this animal was sold by a native for human consumption The butcher who skinned and dressed the animal seemed to see nothing unusual in the proceeding He told me that the morbid appearances met with in the heifer were similar to those met with in animals that had died of the periodical sickness

The fourth animal that became affected arrived from Australia on 30th September, and was placed in the stall in which the cow had recently died On arrival she looked thin but healthy, and was carefully fed on hay and sweet potatoes in order that illness from the consumption of indigestible native grasses might be avoided On 9th September appetite began to fail, rumination ceased, bowels were constipated and milk secretion was much diminished On the following day she looked very dull and listless with ears cold and pendent, the conjunctivæ were deeply congested, and a watery discharge ran down the nose from the eyes, a slight muco-purulent discharge proceeded from the nostrils and stinky saliva hung from the mouth She was removed to a stable by herself On 12th October she was lying down, breathed quickly and laboriously and had a slight cough, much muco-purulent discharge proceeded from the nostrils, and diarrhoea had set in On 14th October she breathed hurriedly and with a groan, was apparently in much abdominal distress and passed large foetid liquid evacuations On the following day she died On the three days preceding death the cow's morning temperature was 105° and the evening temperature was 106° 6

On postmortem examination the following appearances were found In the nasal cavities there was a considerable amount of viscid muco-purulent secretion, the mucous lining was generally of a leaden hue, with here and there small patches of diphtheritic membrane adhering to the surface, the larynx and trachea showed many deeply congested parts, and were mottled over with darkened spots, in the trachea several diphtheritic patches were noticed, the pleuræ and lungs were healthy, in the mouth were several small superficial ulcerations, on opening the abdominal cavity the viscera were much inflamed, the paunch, full of hardened food, was congested, and on its anterior aspect there was a patch of ecchymosis several inches in diameter, through the apparently healthy peritoneum large portions of inflamed bowel could be clearly seen, the mucous lining of the small intestines, covered with a viscid, yellow secretion, was of a dirty red colour with some purplish raised patches, the lower portions of small intestine were studded over with pearl-looking bodies about the size of peas and projecting equally on both sides of the bowel, the mucous lining of the large bowel was generally of a deep leaden colour, the spleen was enlarged and softened, the liver seemed natural, but the gall bladder was unusually tumid, and the bile ducts were filled with viscid frothy mucus, the kidneys were healthy

Between the 15th October and the end of the month two heifers died Their symptoms before death were similar to those of the animals that had just died, but no postmortems were held

The seventh animal affected was a New Zealand cow which arrived on 5th November in a steamer that had come from New Zealand *via* Australian ports and Hongkong She was placed in the stable in which the sick cows had been treated, and was fed on the food that had been shipped with her from New Zealand On arrival she looked thin but healthy, and was followed by a fine healthy calf about six months old On 5th November the mother seemed dull and listless, and appetite began to fail On the following day she took no food and rumination stopped, she carried her head low, with drooping ears, the eyes were much congested, from the nostrils came a slight discharge, and she breathed quickly On 8th November

she seemed to have much abdominal suffering, and violent dysenteric purging set in. On the afternoon of 9th she passed a large evacuation, composed of almost pure blood, and died, in a convulsive struggle, in the evening. Throughout illness temperature was never seen to exceed  $103^{\circ}4$ . On the following morning a postmortem examination was held. Rigidity was well marked, the vulva was swollen and congested, the mucous lining of the nares was generally of a leaden colour, with granular patches of mucous membrane covered with tenacious secretion, the laryngeal and tracheal mucous linings were much congested and mottled, the lungs and pleurae were healthy, in the mouth were some small superficial ulcers, the paunch was full of the food last eaten, the mucous lining of the small intestines was throughout intensely congested and covered with viscid mucus, occasionally livid raised spots and superficially ulcerated patches were met with, the inner surface of the large bowel, especially near the caecum, was of a deep livid hue, and near the caecum there were several deeply ulcerated spots, the mesenteric glands were large and of a deep purple tint, the spleen was much congested, the liver seemed to be healthy, the gall-bladder was large, and the bile ducts were full of frothy viscid secretion.

The eighth animal affected was the calf of the cow that had just died. On arrival it seemed particularly healthy. It was ailing on 10th November, and on the 11th it refused all food and seemed very ill, it was lying down with head low and ears drooping, the conjunctivae were much congested and a watery discharge ran down its face, its muzzle was dry, and a scanty discharge came from the nostrils, respiration was hurried and laboured and it sometimes groaned. On the 12th dysenteric diarrhoea set in. In the afternoon it lay on its side with its head resting on the floor, and in the evening it died. During life the morning temperature ranged from  $103^{\circ}6$  to  $104^{\circ}6$ , and the evening temperature was about  $105^{\circ}6$ . On the morning of 13th November a postmortem examination was held. The vulva was deeply congested and superficially ulcerated, the nares were filled with a viscid muco-purulent fluid and patches of the mucous membrane congested, the larynx and trachea were much congested and filled with a pinkish froth, the lungs were congested, but both pleurae were healthy, over the mouth there were several ulcerated spots, and roof of the mouth had a mottled appearance, on the tongue the fungiform papillae were large and of a bright red colour, there were several ecchymosed spots on the surface of the paunch, the mucous lining of the intestines was diseased throughout, the spleen was congested, and the gall bladder distended with altered bile. On the 16th November two cows, occupying stalls adjoining the one which had been occupied by several of the previously affected cows, took ill. Up to this time affected animals had been removed from the healthy, but as there could no longer remain any doubt as to the nature of the malady the healthy animals were sent out of the infected dairy to be housed in small stables scattered over the settlement, and the dairy houses reserved for the treatment of sick cows and for pony stabling. Of the cows taken ill on the 16th, one died on the evening of the 17th, and in eight days the other was convalescent.

Between the 16th of November and the end of the month some of the animals that had been sent out of the dairy were returned infected and some of them died. On 30th November two heifers, being very ill and considered to be at the point of death, were killed. Between the 6th September and the end of November the dairy had lost 15 animals, including four animals imported during that period. 13 died, two were killed and five affected animals recovered. The symptoms of all were much alike, and the symptoms and postmortem appearances of those that died corresponded in all respects with those of steppe muram as observed by Dr EDWARD HENDERSON, and described by him in his memorandum on that disease as it occurred in Shanghai in 1872, and agreed with all I had previously seen and heard of the endemic "enlarged gall-bladder fever sickness" of Foochow. Of the five affected animals that recovered, three had the disease in a mild form. Their temperature never exceeded  $103^{\circ}$ , the discharge from eyes and nose was slight, bowels were only relaxed, and they did not seem to have much distress. The other two seemed to suffer more than any of those that died. In them the discharges from the mucous surfaces were very profuse. About five days from the beginning of illness masses of muco-purulent matter adhered to the lining of the nares, and large flakes of greenish purulent

matter hung from their nostrils, abdominal pain and dysenteric purging were severe, and the evening temperature was  $105^{\circ}$ . After being ill for eight days convalescence set in, and some desire for food returned. Four of the five animals were pregnant and, before recovery was complete, lost their calves by abortion. Some time after recovery patches denuded of hair in various parts of their skins were noticed.

During illness the sick animals were liberally drenched with congee water, to which stout was sometimes added, but no other treatment was adopted.

Three heifers bred in Foochow, one old native cow and four cows that had been imported more than four years ago escaped disease.

An attempt was made to prevent infection from reaching three animals imported from Australia in December, but two of them caught the disease and died.

There is no doubt that the flesh of diseased animals that have been killed or that have been allowed to die is consumed by natives, but I have not seen or heard of any illness resulting from the use of such flesh as food.

As to the milk of diseased animals, it soon ceases to be secreted. It was noticed that as soon as animals became affected the small quantity of milk yielded was of a deep yellow colour and of very high specific gravity.

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## DR C C. DE BURGH DALY'S REPORT ON THE HEALTH OF NINGPO

For the Year ended 30th September 1886

FOREIGN POPULATION	
Male adults . . . . .	52
Female adults . . . . .	35
Male children . . . . .	19
Female children . . . . .	21
TOTAL	<u>127</u>
Births . . . . .	3
Deaths . . . . .	0

The general health at this port during the year has been fairly good. No deaths occurred, one temporary and two permanent residents died elsewhere. The cause of death in the former was diagnosed as tumour of the brain, death took place at Singapore. The cause in the two latter was cholera, which attacked them while travelling in native boats in the canals near Chinkiang. Some particulars of their illness and death appeared in Dr WHITE'S Report on the health of that port for the half-year ended 31st March 1886.

The diseases observed among foreigners have been—

Remittent fever	Tumour of brain
Intermittent fever, usually of the quotidian type	Persistent eructation
Acute and chronic congestion of liver	Conjunctivitis, catarrhal, phlyctenular
Diarrhoea, simple catarrhal, infantile and choleraic	Corneitis, ulcerative
Renal calculus	Asthenopia, accommodative
Chronic cystitis	Middle ear, acute, chronic and purulent catarrh of
Bronchial catarrh	Venereal diseases
Pneumonia	Traumatic orchitis

The case in which the prominent symptom was eructation occurred in a male adult, who for some years had suffered from dyspepsia. One day in May 1885, early in the morning, he was seized suddenly with uncontrollable and noisy eructations. These attacks continued to come and go from that date, and during the ensuing six months he consulted many doctors, and tried various remedies, amongst others, acids, alkalies, hot water, strict dieting, etc. He visited Chefoo and various other localities in China without any material benefit. In November 1885 I saw him for the first time. He was then comparatively free from the attacks, which did not occur while he was alone, but directly a visitor entered the room the eructations commenced and continued more or less as long as anyone was present. During the attacks he swallowed a quantity of air, which was forcibly and noisily expelled by spasmodic

contractions of the pharyngeal muscles. These attacks had no relation to time of taking food, or to its quantity or nature. Since they began he has been entirely free from any dyspeptic symptoms and has been in excellent health. Among other remedies I tried cocaine, chloroform and electricity. The latter seemed to give good results, inasmuch as he was almost free from any trouble for two or three weeks, but after that it returned with all its old violence, till finally the patient, feeling unfit for work, left for England.

The diseases most common among natives were intermittent fever, mostly of the quartan type, fevers of a low nervous type generally proving fatal, small-pox, measles, intestinal catarrh, bronchitis, a few cases of cholera, eye and skin diseases of every kind and variety.

With the kind assistance of a member of the Church Missionary Society I was enabled to open a dispensary for natives, and, later on, a hospital.

In contrasting the dispensary cases here with those in Western climates I noticed—

- 1 The large amount of skin disease, general not local, which would form an interesting field for investigation if the patients could be persuaded to attend regularly.
- 2 In eye diseases far the larger number were cases of granular conjunctivitis with all its results—entropion, trichiasis, distichiasis, pannus and ulcers of cornea, strongly reminding one of an Irish dispensary, where the same state of things exists. Diseases of lens and fundus were scarce, and up to the present I have not met with a case of glaucoma. There were two cases of cyclitis, both of the patients refused to allow enucleation.
- 3 The prevalence of malarial poison and its results, especially enormously enlarged spleen.
- 4 Elephantiasis, of which I have seen several cases.
- 5 The large number of cases of anæmia, nearly always occurring in women, due to various causes.

#### RELATION OF DISEASE TO LOCAL CONDITIONS

In considering this point my attention is continually drawn to the close proximity in which we live to large quantities of decomposing human fæces. Our conditions are briefly as follows. We live in houses near large kongs filled with old and putrefying fæces, the accumulation of months, especially during the summer, when manure is not wanted for the fields. In spring and autumn it is removed in boats which are loaded and travel in the canals, where the natives wash their rice and vegetables. I have often seen women doing this within a few feet of a night-soil boat. On the banks of the canal, on which the largest traffic of these boats occurs, is situated the dairy which supplies most of the foreigners with milk, and in this canal the dairy folk wash all their utensils. Every sanitary precaution deemed necessary at home against the spread of disease is utterly neglected here. No precautions are taken with the excreta from cholera or from fever patients. One is led to the conclusion that even if the pythogenic theory of the origin of typhoid fever be a right one, it is not universally applicable, if it were, the disease would rage here, for everything to favour fæcal decomposition exists—warmth, stagnation, accumulation and partial seclusion, yet no case of typhoid fever has occurred for many years among foreigners, and it is an extremely rare disease among natives. Dr BARCHET, during his 20 years' residence here, has not known of a case occurring in a

foreigner Before leaving this subject I am glad to be able to say that a scheme for much needed sanitary reform is under way, and I trust will before long be in thorough working order

Several cases of elephantiasis came under my notice

Measles commenced in the spring and did not, as usual, subside during summer, even still there are many cases in outlying villages The mortality has been high

Before finishing this Report I should like to say a word or two about Dalansan

It is situated some 2,000 feet above the level of the sea on a huge plateau, surrounded on all sides by the most beautiful hills and valleys, the scenery, in the opinion of some, being equal, in many places, to Japan The thermometer readings are on an average 8° to 10° F lower than in the plains, and the nights are always cool During last summer some foreign children suffered from ague while residing there With these exceptions all the visitors benefited greatly by their stay The journey is rather trying in summer, it being necessary to travel for a few hours in the middle of the day in covered boats or chairs Altogether the journey takes 14 to 17 hours

I can strongly recommend it as a summer health resort, especially during September, when one can be out of doors all day long with safety

In conclusion I wish to express my thanks to Dr BARCHET, who kindly gave me most of the information about the diseases prevalent among natives

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# DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 30th September 1886

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the Six Months ended 30th September 1886 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  $8^{\text{h}} 5^{\text{m}} 45^{\text{s}}$  \*

DATE		Barometer at 32° F	THERMOMETER		Amount of Vapour in the Air per Cubic Foot	Hu- midity, 0-100	Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	REMARKS
			Diurnal Mean Tempera- ture in Shade	Extreme Tempera- ture in Shade								
1886		Inch	° F	° F				Miles	*	Inch	Inch	
April	Max	30.262 (25)	65.3 (23)	77.9 (10)	0171 (23)	94 (3)	14 (2)	26.4 (10)	S 80° E	3.426	2.627	Twelve rainy days. Thunderstorms on the 3rd, 10th and 11th. On the 31st, first swallows seen.
	Mean	56.6		0116	75	10	13.4					
	Min	29.672 (10)	50.4 (12)	43.3 (29)	0078 (26)	55 (25)	6 (6)	1.1 (12)				
	Range	0.590	14.9	34.6								
May	Max	30.133 (27)	76.8 (12)	86.9 (12)	0240 (20)	96 (16)	13 (30)	43.7 (10)	S 45° E	4.328	3.730	Twelve rainy days. Thunderstorms on the 3rd and 20th.
	Mean	67.1		0174	78	9	14.4					
	Min	29.598 (20)	57.0 (6)	44.2 (1)	0092 (1)	53 (1)	6 (1)	2.9 (21)				
	Range	0.535	19.8	42.7								
June	Max	29.955 (19)	82.6 (21)	91.8 (20)	0323 (20)	97 (28)	18 (3)	50.4 (25)	S 40° E	2.728	12.251	Seventeen rainy days. Thunderstorms on the 6th and 21st.
	Mean	0.465	72.2		0229	84	12	12.5				
	Min	29.490 (25)	61.2 (3)	52.0 (4)	0121 (12)	55 (12)	8 (12)	1.7 (18)				
	Range	0.465	21.4	39.8								
July	Max	29.875 (6)	88.5 (31)	98.6 (31)	0351 (31)	92 (3)	13 (3)	41.9 (16)	S 35° E	5.725	0.118	Four rainy days. Thunderstorms on the 5th, 8th and 31st.
	Mean	83.2		0317	79	7	16.2					
	Min	29.541 (23)	72.1 (3)	68.4 (1)	0247 (2)	72 (16)	4 (14)	1.4 (3)				
	Range	0.334	16.4	30.2								
Aug	Max	29.955 (27)	86.5 (1)	95.5 (26)	0375 (1)	94 (29)	11 (17)	62.8 (17)	S 60° E	3.399	13.351	Fifteen rainy days. Thunderstorms on the 1st, 3rd, 4th, 5th, 6th, 25th and 29th. Typhoon on the 14th and 17th.
	Mean	81.2		0316	85	7	15.5					
	Min	29.461 (18)	76.6 (18)	71.6 (19)	0298 (17)	76 (12)	4 (11)	0.9 (5)				
	Range	0.494	9.9	23.9								
Sept	Max	30.182 (30)	81.5 (2)	89.2 (2)	0318 (2)	93 (15)	15 (5)	29.4 (23)	N 15° E	3.244	3.898	Six rainy days.
	Mean	29.922	71.8		0211	79	9	10.2				
	Min	29.686 (6)	65.1 (25)	52.7 (25)	0148 (24)	69 (24)	7 (2)	1.3 (26)				
	Range	0.496	16.4	36.5								

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich.

NOTE —The figures in parentheses indicate the days on which the observations to which they are appended were made. Under the headings "Diurnal Mean Temperature in Shade," "Humidity," and "Ozone" they indicate the days on which the mean readings were respectively highest and lowest.

The above abstract has been kindly drawn up by the Rev Pere DECHEVRENS, Director of the Sicauei Observatory

The season was an average one as regards temperature and humidity, but the sun was unusually powerful in April, May and June, several cases of malaise from this cause having come under observation during these months. The end of June was wet and cool, but the weather became dry and heat intense early in July. From the 5th July to the 2nd August there was no rainfall, while the maximum temperature during the day oscillated between 90° and 95°, and reached 98° on the 31st July, when, after two stormy days, there was an interval of cooler weather, a cold breeze, which was not without danger, blowing every night during the early part of August. The entire month was stormy. September was cool and dry, a month so enjoyable that migration to Chefoo, however advisable for the sake of sea air and sea bathing, was, so far as comfort was concerned, by no means a change for the better.

### BURIAL RETURN of FOREIGNERS for the Half-year ended 30th September 1886\*

CAUSE OF DEATH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	TOTAL
Varicella	1†	f 1					2
Enteric fever		1§		1§			2
Continued fever		1	1§				2
General debility					1		1
Cholera		1§			2§	2 f 1 7§	13
Tuberculosis	f 1	f 1					2
Bruin discolor	1§						1
Chronic alcoholism			1†		f 1		2
Cerebral hemorrhage				1			1
Apoplexy					f 1		1
Pulmonary congestion			f 1  ¶				1
" embolism			f 1				1
Pneumonia			f 1				1
Chronic bronchitis		1					1
Heart disease			1				1
Fatty degeneration of heart				1§	1		2
Cardiac paralysis					1		1
Aneurism of innominate artery			1				1
Dysentery		1†	1§				2
Gastro enteritis						2§	2
Dysentery						1 f 1 1§	3
Intestinal obstruction						1§	1
Rupture of intestine						1	1
Intestinal cancer	1						1
Bright's disease			1	1			2
Marasmus			1§¶				1
Premature birth				1¶ f 1¶			2
Tumour		1§					1
Suicide (gunshot wound)	1						1
Accident (fall from loft)		1§					1
Burns						1§	1
Drowned				1†§			1
Found dead		1§					1
Buried on coroners order					1§		1
<b>TOTAL</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>7</b>	<b>8</b>	<b>18</b>	<b>58</b>

\* Not including deaths (if any) among the Catholic religious bodies, among Eurasians or Japanese, exclusive also of still births.

† Macro parentage (4)

‡ Unvaccinated

§ Non resident (25)

|| Native of Manila (2)

¶ Infant (4)

Subtracting 2 cases of premature birth, 1 case of suicide, 1 "found dead," 1 "buried under coroner's order" and 3 of accident, there remain 50 deaths to be attributed to disease. Deaths from disease among infants are represented by 3, two non-Europeans, and the third the child of a European visitor. The foreign adult mortality was therefore 47 (38 males and 9 females), against 38 (31 males and 7 females) during the corresponding period of 1885.

#### CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS

Cancer	1	Cholera	3 (1 female)
Tuberculosis	2 (females)	Diseases of circulatory organs	5 (1 female)
General debility	1	„ of respiratory organs	1 (female)
Variola	1 (female)	„ of digestive organs	3 (1 female)
Continued fever	1	Cerebral diseases	3 (2 females)
Bright's disease	2		

14 males and 9 females, against 16 males and 6 females for the last previous corresponding period

[No deaths among resident European children]

#### CAUSES of DEATH from DISEASE among NON-RESIDENT EUROPEAN ADULTS

Enteric fever	2	Diseases of digestive organs	5
Cholera	9	Cerebral disease	1
Disease of heart	1	Tumour	1

19 males, as against 9 males during the corresponding period of 1885

#### CAUSE of DEATH from DISEASE of a CHILD of NON-RESIDENT EUROPEAN

Miasmus 1

#### CAUSES of DEATH from DISEASE among RESIDENT NON-EUROPEAN ADULT FOREIGNERS

Variola	1 (Macao)	Continued fever	1 (India)
Chronic alcoholism	1 ( „ )	Cholera	1 (Chih)
„ bronchitis	1 (Manila)		

5 males, as against 4 males and 1 female in the last corresponding period

#### CAUSES of DEATH from DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Diarrhœa	1 (Macao)	Pulmonary congestion	1 (Manila, female)
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Dysentery, diarrhœa, the inflammatory diarrhœa of children, hepatic congestion, malarious and typhoid fevers, rheumatism and neuralgia, bronchitis and ophthalmia were the affections that made up the routine work of my own practice, and doubtless this list is a fairly representative one. Dysentery was unusually intractable, especially towards the close of the season, the small mortality registered during the half-year from this cause being deceptive. Year by year frank malarious fever becomes less common, its place being taken by typhoid, and it appears to me that the type of enteric fever grows more severe and the occurrence of hæmorrhage towards the close of the third week more frequent.

Last year I lost a case of typhoid from this cause. During the past half-year I have had three cases of late hæmorrhage, two exceedingly severe, but all terminating favourably. Bleeding ceased so soon after the administration of the liquid extract of hamamelis virginica in large doses, that I am inclined to attribute the fortunate event to this drug. In one of the three cases here referred to, myopia = 4 D appeared as a sequela in a patient whose refraction had previously been normal. In the remaining two cases obstinate periostitis of the tibiæ long retarded convalescence.

From April to June measles was prevalent, and whooping-cough became common in July. Several cases (mostly mild) of small-pox occurred in May and June. Many cases of varicella were under treatment in May, and parotitis, though I think not epidemic, was of frequent occurrence in June. During May a considerable number of cases of choleraic diarrhoea came under observation among the sailors, although judging by my own lists the Settlement was at that time tolerably free from diarrhoea in any form. Dr SLOAN informs me that the cases he treated, although many of them sufficiently menacing, were not accompanied by cramp or suppression of urine. One case presenting all the symptoms of cholera occurred in my practice in May, and terminated fatally.

The patient, aged 42, was chief engineer of an ocean steamer lying at Woosung. On the evening of the 21st May he dined with a family in Shanghai. In the morning he and a gentleman who had also been of the party drank a pint of milk between them, and went together to Pootung. On the way he vomited several times, but insisted on starting for Woosung in a steam-launch. He went to bed immediately on getting on board his ship, and spent the evening and night purging and vomiting. At 10 A.M. on the 23rd the evacuations had ceased, but Dr SLOAN found him with a temperature of 103°, skin cool, vertigo on rising, very drowsy and slightly delirious. He was treated on board that day. During the night purging and vomiting recommenced, the fluid discharged being "like milk and water." He had been sipping milk. He acknowledged that his urine was much diminished in quantity, but he thought he passed some with each stool. He was brought to the General Hospital at 4 P.M. on the 24th, and transferred to my charge at 5 P.M.

Meanwhile, on the afternoon of the 22nd the gentleman who had shared the milk with him began to complain of nausea, purging and abdominal pain. His temperature at 10 P.M. was 102° 5. Severe griping continued all night and through the next day. At 11 P.M. on the 23rd his symptoms had abated. Temperature, 98° 2. Great flatulent distension of stomach and intestines. Had had three stools, the first fluid, the others solid, all very fetid. Had been treated with salicine in 30 grain doses, and laudanum to relieve griping.

Further, on the 23rd, three children who had dined with the family on the evening of the 21st, but who had drunk no unboiled milk, began to purge and vomit violently, with temperatures ranging up to 105°. These symptoms began to disappear towards night. One of the children had convulsive twitchings. With the exception of the patient, his friend, and these children, no one else who had shared the dinner of the 21st suffered in the least. As far as could be ascertained, all had eaten freely of everything served.

And lastly, at this same date several cases of "cholera" occurred on board the ship to which the patient belonged, and on board another steamer also lying at Woosung. Both vessels were last from Hongkong. None of these cases proved fatal.

On admission to hospital, the history above detailed was given. During the afternoon patient's calf muscles had been severely cramped, and pulse was hardly, if at all, perceptible when he started from Woosung. Drank a bottle of champagne on the way, and immediately on arrival had a hypodermic injection of morphia which gave much relief.

Choleraic voice, eyes excavated, body covered with perspiration, vomiting and purging "rice-water," temperature in mouth, 98° 4, tongue natural, breath cool, not cold, thirsty, pulse hardly perceptible, guessed at 110, slight dyspnoea. Quite collected.

He was ordered sinapisms, champagne, and 5 grains of salicine in milk every second hour. At 9 30 P.M. pulse could be counted at 96. One stool, fluid but yellow. No cramps. Had vomited once.

25th.—Two stools during night, chiefly milk curd, is certain that he passed urine with them (?). Occasional slight cramps in muscles of calves, front of thighs, loins, and radial side of forearms. Respiration sighing, dyspnoea on attempting to rise. Voice nearly natural. Hepatic dulness distinct to 1½ inch below ribs. The stools now became bilious and infrequent, the temperature fell in the afternoon to 96° 2, but

rose again to normal at night Dyspnoea more marked Skin drenched in cold sweat, voice flagging Great restlessness

On the 26th the stools were healthy, and having asked for some gruel he ate it with relish, and retained it Vomiting arrested so long as he lies still At 3 P.M. he passed about 2 oz of urine, intensely acid and containing no albumen Had one stool of typhoidal appearance Pulse 132, hardly perceptible in right radial, imperceptible in left, temperature in mouth, 99° Subsultus Skin cold and wet Respiration consists almost entirely in a regular series of deep sighs During the night the surface temperature rose in consequence of assiduous rubbing

27th—Sleeping on back with eyes half open Pulse, 90, strong, equal on both sides One stool, typhoidal No urine

A drop of the stool examined under the microscope ( $\times 200$ ) showed a few granular red corpuscles, large epithelial scales, the largest deeply pigmented (yellow), a few fat globules, two normal blood corpuscles in three fields, minute fragments of muscular fibre (remains of food?)

The tongue now became dry, temperature ranged between 96° and 97° 5 Drowsy but extremely restless At 3 30 P.M. (27th) he insisted on getting into a long chair Complaints of loss of power in legs and arms, and of sensation of "pins and needles" Passed about  $\frac{1}{2}$  oz of acid urine containing no more than a trace of albumen Hiccough At 9 30 P.M. there had been no stool, 4 oz urine, which had been thrown away, one attack of bilious vomiting Wanders when he falls into a doze Had retained about 3 pints of milk

28th—After a restless night, with occasional sleeps, he suddenly lost the power of speech at 4 A.M. He remained conscious for about 20 minutes, and died at 5 15 A.M.

*Postmortem, 6 Hours after Death*—Body that of a well-developed, muscular man, 5 feet 11 inches in height Rigor mortis Considerable amount of subcutaneous fat Interior of body not markedly warm Temperature of mortuary, 63° F

Pericardium, covered with fat, contained about 1 oz of yellow serum No ecchymoses on visceral surface Heart tightly distended, especially on right side Both ventricles contained a quantity of loosely coagulated blood, and, in addition, moulds of completely decolorised fibrin of leather-like consistence intricately engaged among the columns and chordae One of these coagula was prolonged to a distance of 2½ inches up the aorta, occupying about one third of its calibre All the valves were competent and healthy Heart drained weighed 13½ oz Its surface was covered with fat The pleurae were not ecchymosed Lungs crepitant throughout Blood dripped freely from each lower lobe on section

Stomach distended with gas, covering anterior surface of liver as far as mammillary line Liver healthy but gorged, weighing 69 oz after a great deal of blood had escaped from it Spleen engorged, but not enormously Kidneys—right weighed 8 oz, left, 7½ oz, easily decorticated Blood flowed freely from them on section Tissue very friable from distension No disease The ileum for about 18 inches from the ileo caecal valve was injected, the injection in two places close to the valve being visible through the peritoneal coat No ulceration of PEYER'S patches, but deep congestion and infiltration This was rendered more manifest by thinning of the intestinal wall between the patches, the mucous surface in these situations being denuded of epithelium The same appearances were observed in the caecum, and for about 3 inches of ascending colon Transverse colon distended with gas Ileum contained a small quantity of typhoidal faeces Bladder contained about 6 oz of urine, depositing merely a cloud of albumen on boiling

I certified the death as due to cholera, but the diagnosis is at best doubtful With this full history each reader can judge for himself as to the part possibly played by something eaten at the dinner party or by the milk swallowed on the following morning

No cholera was observed, so far as I know, between June and the 26th August After this latter date several cases occurred, mostly among the shipping



## APPENDIX

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### PLATES ILLUSTRATIVE OF DISEASE ENCOUNTERED AMONG CHINESE RECEIVED INTO FOREIGN HOSPITALS IN SHANGHAI

(Continued from Vol xxxi)

*(These Woodcuts are traced from Photographs)*

PLATE VII—*Result, 6 weeks after excision of 7th and 8th Ribs, and removal of much carious Bone from bodies of 8th and 9th dorsal Vertebrae*

Patient had fallen from a scaffolding three months before admission, striking left chest against a beam. Had been laid up ever since. Wasted to a skeleton. More than 20 oz of pus expectorated daily. Large fluctuating tumour containing air occupying lower lateral region of left chest. Horseshoe incision with convexity downwards from axillary line to middle of back. Large cavity opened lined with false membrane, its walls formed of tissues so matted together as to be indistinguishable from one another. This cavity contained a large quantity of areolar sloughs. The 7th and 8th ribs were found partly carious and partly necrosed, and were removed. The bodies of the 8th and 9th dorsal vertebrae were deeply carious and were gouged. Patient was thought to have died on the table, and had a severe struggle for life during some weeks. Discharged cured on the 70th day after operation, the wound having been dressed for the last time on the 45th day. [St Luke's Hospital. Dr JAMIESON.]

PLATE VIII—*Periosteal Fibro-sarcoma of Lower Jaw, left side, extending nearly to clavicle, and widely displacing all the surrounding soft parts*

Considerable number of large but unrecognisable vessels divided between ligatures before mass could be removed. Rigorous antiseptic treatment. Wound completely healed on 11th day. [St Luke's Hospital. Dr BOONE.]

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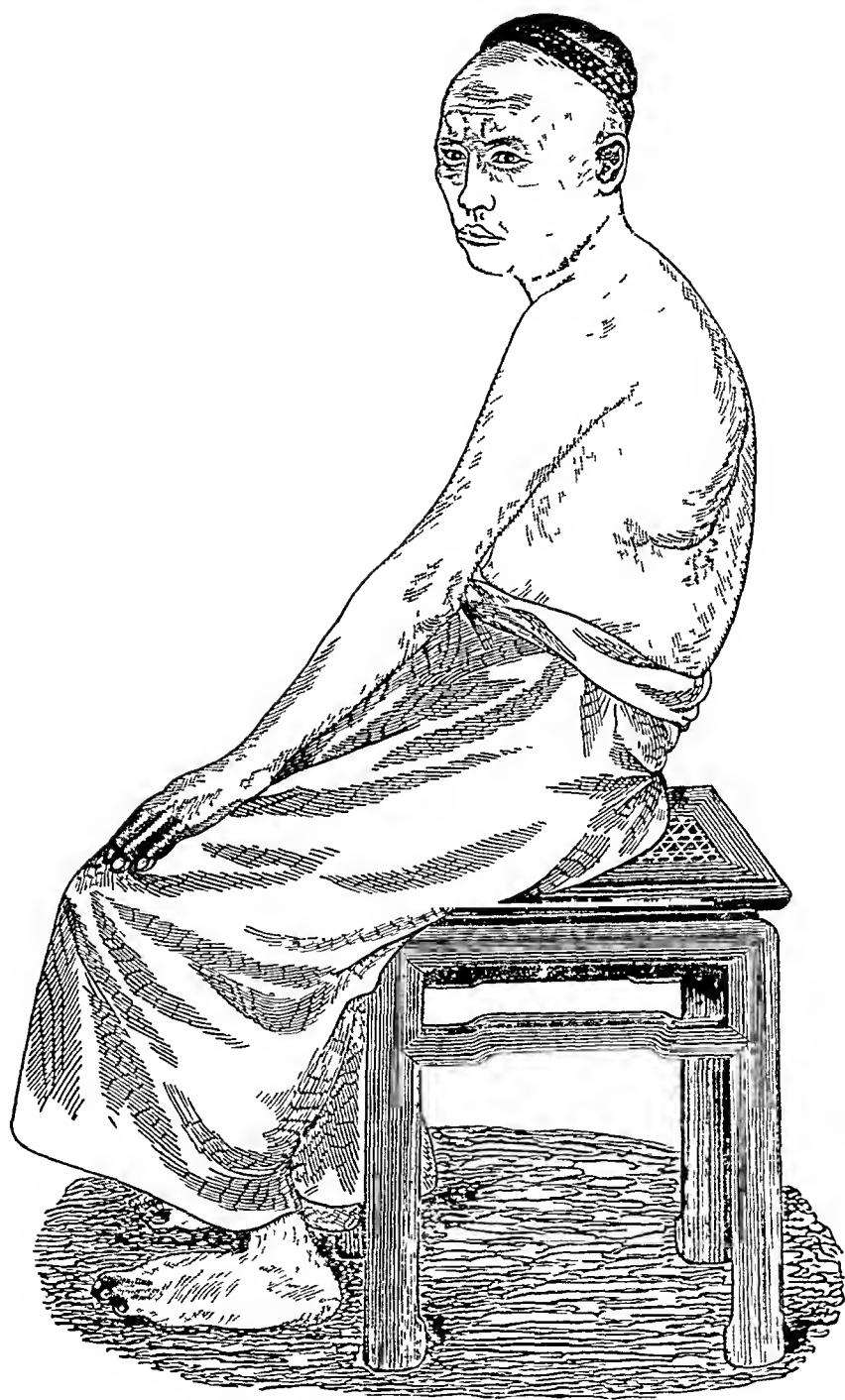


PLATE VII

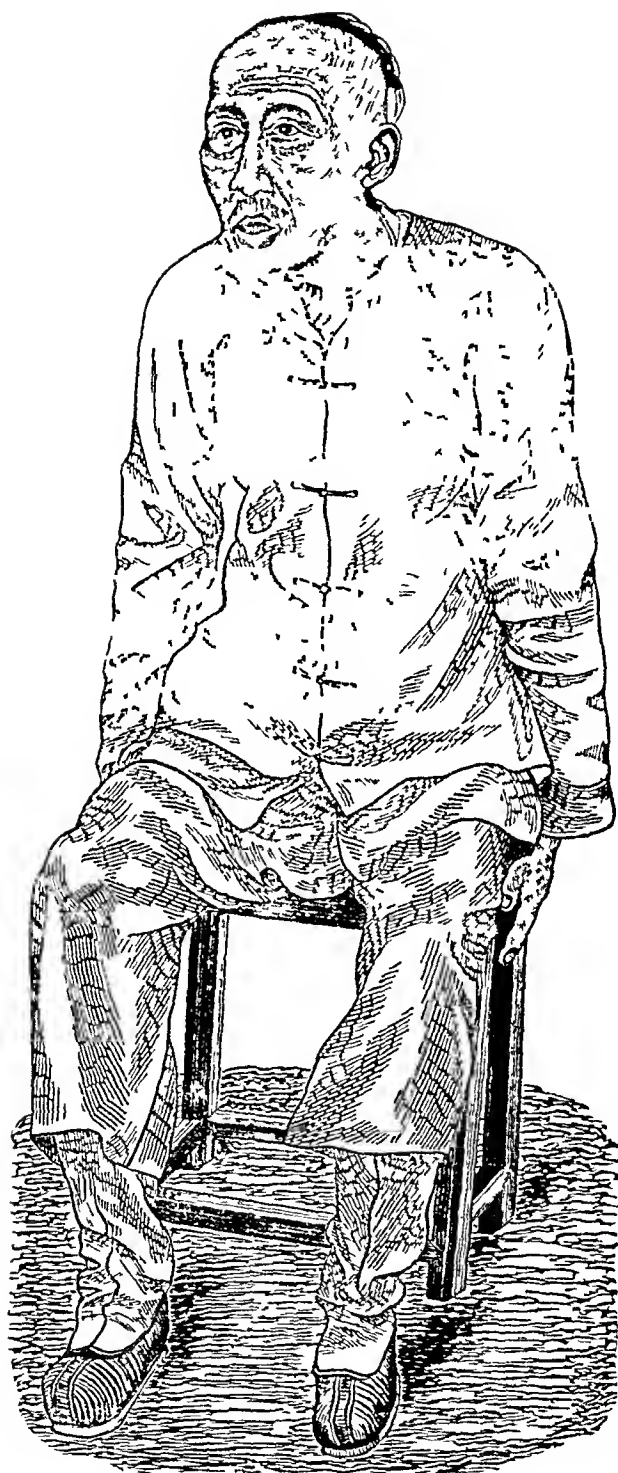


PLATE VIII

CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31<sup>ST</sup> MARCH 1887

33<sup>rd</sup> Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE.

LONDON P S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1887.



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

*a*—The general health of during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death.

*b*—Diseases prevalent at

*c*—General type of disease, peculiarities and complications encountered, special treatment demanded.

*d*—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

*e*—Peculiar diseases, especially leprosy

*f*—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

4.—

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I am, etc ,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Takow,*  
*Kuikwang, Amoy,*  
*Chunwang, Swatow, and*  
*Shanghai, Canton.*

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SHANGHAI, 1st July 1887

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Tientsin for the nine months ended 31st December 1886,  
pp 4-7

Report on the Health of Seoul (Corea) for the year 1886, pp 38-41

Report on the Health of Chefoo for the half-year ended 30th September 1886, pp 8-10

Report on the Health of Newchwang, pp 1-3,

Report on the Health of Kukiang, pp 19-24,

Report on the Health of Chinkiang, pp 26, 27,

Report on the Health of Canton, pp 32-34, each of these referring to the year ended  
31st March 1887

Report on the Health of Hankow, pp 11-18,

Report on the Health of Wuhu, p 25,

Report on the Health of Shanghai, pp 28-31,

Report on the Health of Hoihow (Kiungchow), pp 35-37, each of these referring to the  
half-year ended 31st March 1887

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
PEKING

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The Contributors to this Volume are —

W MORRISON, M B , CH M	Newchwang
A IRWIN, L K & Q C P , F R C S I	Tientsin
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E A ALDRIDGE, L K & Q C P I	Wuhu
R G WHITE, M R C S , L S A	Chinkiang
R A JAMIESON, M A , M D , M R C S	Shanghai
J F WALES, B A , M D , CH M	Canton
J H LOWRY, L R C P E d , L R C S E d .	Hoihow (Klungchow)
D <sup>1</sup> H N ALLEN	Seoul (Corea)

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## DR. W MORRISON'S REPORT ON THE HEALTH OF NEWCHWANG

For the Year ended 31st March 1887

IN the appended meteorological table and remarks a full exhibition is given of the climatic conditions which obtained during the year under review. The mildness of winter and the floods of the preceding autumn are there referred to as among the most noteworthy phenomena. The area of greatest distress from destructive effects of the floods may be roughly described as beginning at a point on the river Liao, about 20 miles north from this port, and extending thence northward for about 80 miles on either bank of the river. On three separate occasions the foreign community here sent deputations to visit that district and distribute relief. These deputies bore witness to the loss of life, the large number of houses washed away or thrown down, the over-crowded condition of the remaining houses, the large proportion of women and children (the men having gone elsewhere in search of work), the insufficient food, and, in consequence of these conditions, high per-centage of sickness and death. Bran of millet and *par-tzu* (a species of millet grown for feeding cattle) were the staple articles of food, while the more destitute contrived to get nourishment from a species of grass, chopped and forming cakes or soup, and others fed on the leaves and seeds of weeds gathered from the country round.

The native authorities endeavoured to meet the emergency by distributing help, while at T'ien-chuang-t'ai and elsewhere houses of refuge were opened for the homeless. Reports state that through over-crowding and imperfect food and sanitation, these houses were full of disease, and many of the unfortunate fugitives perished there after having escaped the floods.

In the country adjacent to Newchwang the destruction of crops and property was not so much felt.

During the year, although the per-centage of deaths among foreign residents has been high, the general health of the community has been good, and we have enjoyed an immunity from epidemics.

Four births and five deaths have to be recorded.

The causes of death were as follows —

Suicide	2
Fatty heart	1
Apoplexy	1
Typhus fever	1

The fact that two suicides occurred in one year points to the necessity for early endeavours, by healthful and hope-inspiring influences, to combat those morbid views of life which in the face of difficulties and absence from home influences are apt to gain temporary ascendancy.

One of these suicides was a male, aged about 44, of intemperate habits. He shut himself up for three days, refusing admission even to his servant. At the end of that period he was found dead.

A postmortem examination showed that death was due to asphyxia, caused by excessive consumption of alcoholic liquor.

With regard to the deaths due to fatty heart and apoplexy, both patients were males, aged about 40, otherwise healthy and muscular.

The former furnished the usual history of a cardiac case, extending over a period of about two years. No indications of valvular lesion were present. The patient was very corpulent, and the accumulation of adipose tissue round the thoracic viscera must have tended to add to the cardiac embarrassment.

Broad-chested and short-necked individuals, with florid complexion and prominent eyes, we are told, form the class most exposed to apoplectic attacks. The latter of these cases was an illustration of the truth of the remark

While piloting a steamer up the river, he suddenly fell down on the bridge. Consciousness was lost, and the breathing became stertorous. In this condition he continued for 9 hours, when death took place.

In the case of typhus fever—a male, aged 28—the fever ran a somewhat mild though rather protracted course.

The patient had passed the crisis and was slowly recovering. Having but shortly before entered into business, he could not be dissuaded from attempts to attend to business matters. The result was sudden failure of the heart. From a first attack he was restored by the use of stimulants, but next day a return of the syncope carried him off.

*Use of Cocaine as an Anæsthetic*—In a case of amputation of penis for epithelioma, my friend Dr CHRISTIE writes me from Moukden —

Chloroform was administered, but taking it very badly it was decided to try cocaine. I dissolved 2 grains in 40 minims of water, and injected 20 minims in three doses at short intervals around the seat of incision. In about a quarter of an hour after first injection the part was removed perfectly painlessly, indeed the patient would not believe the operation was over. He has recovered without a bad symptom.

I had intended to repeat the method just indicated in a case of epithelioma of penis sent to me for operation from Kirin, but as some delay was caused by the difficulty of explaining to patient and his friends the necessity for the operation, I had to abandon the idea and use chloroform.

This patient made a good recovery and returned to his home much gratified by the operation.

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*Strange Custom in the Treatment of Debtors*—On 12th February a small farmer, named MA, was brought in to me from T'ien-chia-t'un, a village about 17 miles distant. On examination found right eye entirely enucleated and the left partially so and utterly useless, so far as hopes of seeing were concerned. He informed me that three days previously, on the road, he had been set upon by seven or eight men, who tied his hands and feet together, and, with a copper scoop, proceeded to gouge out his eyes. He knew they had only been partially successful with one, and therefore his friends had brought him to see if I could restore it to its natural condition. His offence was that his father owed a debt of 40 taels, which, at the Chinese New Year, when accounts are settled, he had failed to pay.

I am informed that this practice is not uncommon, and that about the same time another case occurred in our neighbourhood, where the unfortunate man died from the effects of the wounds. The matter is engaging the attention of the Chinese authorities.

I am indebted to Mr Harbour Master E STEVENS for kindly assisting me with the following table —

METEOROLOGICAL TABLE for the Year ended 31st March 1887

YEAR AND MONTH	ANEROID BAROMETER		NO OF DAYS ON WHICH THE TEMPERATURE FELL BELOW (FAHR)						NO OF DAYS ON WHICH THE TEMPERATURE WAS ABOVE (FAHR)						No of Days on which Rain fell for over 2 Hours in 24	Total Amount of Rainfall	No of Days on which Snow fell for over 2 Hours in 24	No of Days on which there were Dust storms	No of Days on which High Winds blew
	Highest	Lowest	-5°	0°	10°	20°	32°	42°	60°	65°	70°	75°	80°	85°					
1886	<i>Inches</i>	<i>Inches</i>														<i>Inches</i>			
April	30 20	29 69						6	17	1					5	1 7		2	2
May	30 16	29 64						1			15	1			6	2 8		2	2
June	29 96	29 48										16	6		6	2 1			3
July	29 97	29 50											27	1	11	8 2			
August	30 08	29 52											19	3	9	11 9			5
September	30 24	29 78									12				6	1 9			3
October	30 48	29 92					5	11		8	3						1		4
November	30 60	30 08				7	22										1		1
December	30 46	29 96				31											2		
1887																			
January	30 66	29 90	1	6	25												3	2	3
February	30 52	30 11		1	11	21											3	1	
March	30 56	29 70			3	7											1	2	5

REMARKS.—The summer of 1886 was unusually wet. Heavy rains fell in July and August, causing overflow of the river and consequent destruction (complete in many parts of the country) of the crops. Some idea of the vast quantity of water coming down the river may be gathered from the fact that the vessels in the Yingtzü Anchorage did not swing to the flood-tide for nine days, during the whole of which time heavy freshets were running at a rate of from about 5 to 8 knots per hour. The winter, on the other hand, has been unusually fine and dry, with a higher temperature than in the generality of seasons, and with little snow. The river was not frozen over until 5th January, and by the 23rd March the ice had completely disappeared. The barometrical pressure corresponded generally with that of corresponding months during the last few years, although considerably lower in June and July. N E winds prevailed largely in August, November and January, and generally during the whole year. S W winds prevailed in April, May, June and July. The climate of Newchwang (Yingtzü) is very changeable and unreliable, the barometer gives little warning, sometimes rising for a northerly wind and sometimes for a southerly wind, and, on the contrary, sometimes falling for both, again, a gale of wind will be blowing in the harbour, whereas at the entrance of the river, some 10 miles distant, it will be quite fine and calm.

## DR A IRWIN'S REPORT ON THE HEALTH OF TIENTSIN

For the Nine Months ended 31st December 1886

THE health of the foreign residents during the first three months of the above-mentioned period was very good. The native population also was eminently free from serious sickness, small-pox, which is always present at this period, being of a mild type. I heard of very few cases of diphtheria in the city, and four cases came under treatment. These latter were benignant, and recovery was rapid and complete in each.

In May two cases of heat fever were treated, and during June and July intermittent fever was prevalent amongst those whose occupations or relaxations exposed them to the malarial poison.

I found antipyrene speedily reduce the temperature in the cases of thermic fever. It was given in 20 grain doses in the first case, hourly for three times, afterwards in 10 grain doses every third hour. In the second case, 25 grains hourly for 4 hours, and 10-grain doses as before.

In each it acted promptly as an antipyretic, reducing the temperature in Case No. 1 from  $105^{\circ} 4$  to  $98^{\circ}$ , in case No. 2, from  $105^{\circ}$  to  $97^{\circ} 2$  in 4 hours. Subsequently, there was no rise in the temperature above  $99^{\circ}$ , but the headache was severe and persistent for several days. From the moment the temperature began to fall there was marked relief from the intense restlessness, fever and burning heat of skin. The pulse rate did not fall until perspiration was established. Ice, dry cupping between the shoulders, and mustard sinapisms were also used, followed by salines and mild aperients.

Simple diarrhoea was frequent during June and July, and one case of chronic dysentery (imported) was admitted into hospital.

This patient was very much reduced in strength. He had not been under treatment for three months. The root-bark of aïlanthus was prescribed, as directed by Dr DUGAT, of Peking\*. It gave immediate relief, and there was complete cessation of all dysenteric symptoms on the third day, from which time he rapidly regained strength and continues well to date.

During July, August and September there were 12 cases of malarial fever, 1 of pneumonia and 2 of dysentery. These were the only cases of importance presenting themselves for treatment, and deserve mention only because seven of the sufferers from malarial fever were under 10 years of age.

The two cases of dysentery yielded readily to treatment. The patient suffering from pneumonia made a good recovery.

During the course of the attack, from the commencement to termination, there was neither cough nor expectoration. Both lungs were extensively implicated. He had tonic treatment from the beginning, as he was exceedingly prostrate, with large doses of quinine, 30 grains each night. He continued in a critical state until the 19th day of the attack, when improvement set in, with profuse perspiration and diarrhoea.

\* *Customs Medical Reports*, x, 22

"The following cases from the Viceroy's hospital have been kindly supplied to me by Dr MACKENZIE—

*Recurrent Temporary Paralysis of Right Arm, with Aphasia.*—August 1885 Male, aged 35 In ordinarily good health Awoke one morning with bad headache, rose and had his usual cold sponge bath Upon getting out of the bath, realised a peculiar sensation beginning in the right angle of the mouth, a cold-creeping feeling with muscular quivering, spreading quickly over the right side of the face and head, right shoulder and arm and right side of chest to diaphragm Attempting to call for assistance, as the right arm was numb and heavy and quite powerless, found speech gone Could not utter a word after great effort Right leg quite unaffected Remained in this condition for over an hour, when gradually warmth returned to the arm and recovery of power of movement, the power of speech also returned, though gradually During the attack a mustard-leaf was applied to the nape of the neck, and bromides were administered to relieve the severe headache Temperature, about  $101^{\circ}$ , felt weak and prostrate after the attack Next morning, upon awaking and while lying in bed, the same condition returned, beginning as before with coldness and quivering of the right angle of mouth, inability to cry out or to use the right arm This attack only lasted about five minutes, mind clear throughout There has been no return After a short change of air, recovered strength again Had been subject to short attacks of malarial fever during a residence of 11 years in China No specific history

*Hepatic Abscess*—Soldier, aged 39, powerfully-built man 12th March 1886, first came under observation Complained of pain over the liver, hepatic dulness largely increased, hectic symptoms Ill two months, admitted to hospital, aspirated, drawing off a pint of thick chocolate coloured pus, aspirated again three days later, 4 ounces pus All pain gone and appetite restored Remained in eight days

15th June—Again admitted, with pain and other symptoms Aspirated Remained in nine days This patient could not get leave for more than a few days

14th August—Again admitted DREW off a pint of thick pus

17th August—DREW off 15 ounces pus Would not consent to further operative measures Went out, relieved, after six days Was ordered 200 blows by his commanding officer for over-staying his leave

24th August—Came as out-patient Aspirated

31d October—Admitted to hospital Had succeeded in getting a month's leave In great agony, hepatic tumour much enlarged, hectic fever, face much worn and emaciated, thready pulse Administered ether With antiseptic precautions, inserted largest-sized trocar into the tumour just below the ribs; 2 pints of pus escaped through the canula, washed out the sac with chloride of zinc lotion, and inserted a large drainage tube through the canula, canula removed, marine lint packed round and over the drainage-tube

4th October—About a pint of pus escaped through the drainage-tube during the changing of the dressings Syringed with carbolic lotion, patient comfortable and free from pain, temperature normal

14th October—Shortened tube, only a small quantity of pus in dressings Appetite good

21st October—Removed tube, wound quite superficial, no pus

26th October—Wound healed, enlargement has disappeared The temperature never went above  $99^{\circ}$  after the operation Patient feels in perfect health, eats splendidly Returned to camp

*Calculus in Bladder, Supra-pubic Operation, Recovery*—Child, aged 6, has been ill two and a half years with constant pain upon micturition The urine now dribbles incessantly, and the child is constantly screaming with pain

1st November 1886—Admitted to hospital

2nd November—Careful examination while under ether showed the bladder to be firmly contracted upon the stone Failed to inject  $\frac{1}{2}$  ounce of water into the bladder Introduced one of BARNES' dilators into the rectum, but could not raise the bladder very much Supra-pubic incision Had great difficulty in shelling out the stone, as it had to be scraped away from the mucous surface of the bladder with finger-

naul and lithotomy scoop Dressed the wound with boracic wool, the wool lying loosely over the open wound No sutures or drainage-tube used, and no catheter left in bladder The stone weighed 60 grains

3rd November —Passed a quiet night, did not sleep much, but had no pain Vomited his food this morning Could not take temperature, as he yelled at the sight of the thermometer Urine passed freely through urethra and wound Changed the absorbent wool

10th November —Urine passed freely through the urethra, and very little by the wound, which is closing daily, eats well

15th November —Returned home The wound has closed, leaving a small healthy granulating surface Passes urine by the urethra without pain Has gained flesh Plays about happily

This patient came from Ho chien-fu, 300 *li* south-west of Tientsin, which is evidently a stone district, as the father says he knows of at least 20 similar cases, and that many deaths occur from this disease in his neighbourhood

Stone in the bladder is supposed to be very rare in North China, but three cases, all from Ho chien fu, had previously been operated upon in this hospital, as follows —

24th March 1885 —Boy, aged 16 Removed, by lateral lithotomy, a phosphatic calculus weighing 1½ ounce Made a good recovery

21st May —Patient, aged 50 By lateral lithotomy removed a stone weighing 340 grains Made a good recovery

2nd July —Patient over 50 years old Had suffered from stone symptoms for more than eight years For the last year unable to walk A very large stone and tightly contracted bladder Urine constantly dribbling away In great agony A very slight quantity of albumen in urine By supra-pubic operation removed, with great difficulty, a stone weighing 6 ounces 2 drams 46 grains, and measuring 8 inches in circumference The patient sank from exhaustion on the fifth day

Mr R TRANNACK, Harbour Master, has been good enough to furnish me with the accompanying meteorological table for 1886

METEOROLOGICAL TABLE

MONTH	WINDS					BAROMETER		THERMOMETER		RAIN		SNOW	TIDES	
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	Variable	Max.	Min.	Max.	Min.	Days	Fall	Days	High.	Low
						Inches	Inches	°	°		Inches		Feet	Feet
January	7	1	3	13	7	30.75	30.20	39	3			2	13.6	8.6
February	2		4	12	10	30.85	30.03	45	3				12.0	8.6
March	4	5	4	6	12	30.77	30.02	67	21	1	0.04	1	12.6	8.6
April	3	6	6	5	10	30.40	30.00	80	40	4	2.07		13.0	9.6
May	4	5	7	5	10	30.32	29.87	88	50	3	1.67		13.6	9.0
June	3	6	5	2	14	30.15	29.72	100	55	3	0.62		14.0	8.6
July	6	9	3	1	12	30.12	29.70	102	76	11	7.75		18.0	10.6
August	10	7	5		9	30.27	29.77	94	66	10	8.43		14.6	11.6
September	6	3	7	2	12	30.40	30.02	85	56	3	0.57		14.6	9.6
October	7	3	5	5	11	30.77	30.07	79	34	4	3.62		14.6	7.6
November	4	2	7	8	9	30.75	30.20	56	23	1		1	11.6	8.0
December	1	1	8	15	6	30.75	30.15	43	17				11.6	7.0

REMARKS —January fine moderate weather throughout N W winds —February fine, two light dust-storms.— March fine, two light dust storms —April light rains during month —May fine weather, a few showers —June generally fine, few showers —July wet, rain, 7 75 inches, in 1885, 8 89 inches 3rd July a sharp storm passed over the Settlement, making great ravage in a very short space of time At 8 A M the barometer showed 30 08, temperature 78°, at noon, 30 08, temperature 101°, at 4 P M, 30 10, temperature 72°, at 8 A M (4th), 30 24, temperature 78° At 2 P M a squall broke from the N W, with heavy thunder, lightning and rain At 4 P M heavy rain with violent gusts of wind, circular in its action, accompanied by a heavy hail storm, lasting for about 20 minutes, uprooting several of the trees in the Settlement and damaging the roofs of houses to a great extent A man was blown by the force of the wind off the Bund and had his ribs broken by the fall —August wet —September generally fine, with light rain on two days —October fine, with a few rain showers.— November fine, generally, with even temperature —December fine, mild

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## DR W A HENDERSON'S REPORT ON THE HEALTH OF CHEFOO

For the Half-year ended 30th September 1886

DURING the last hot season no infectious disease has appeared at this port. Though cholera was raging in the neighbouring port of Chemulpo (in Corea), no case of it occurred either among the shipping or on shore, and that notwithstanding the entire absence of protective precautions. Among the natives there was no talk of epidemic intestinal trouble. The mortality amounted to seven cases, viz, two residents, the causes being cardiac dropsy and apoplexy respectively, two visitors, an adult from emphysema and an infant from abdominal abscess, three sailors from the shipping, two of whom were from the French fleet, one being typhoid and the other cerebral disease, and lastly, one from the German fleet, of typhoid.

Recently an attempt has been made to form a native hospital under the Taotai's auspices, and if properly supported ought to be of great service. For many a year there has been no such establishment in the native town, and its need is evident, not merely on account of the large population, but in view of such institutions as the army, navy, China Merchants' Steam Navigation Company, telegraphs and the mines.

Among Chinese patients the disorders principally met with are those of the eyes, skin and intestinal tract. The diet of the people for the most part consists of millet and salted vegetables, and here we find the latter prolonging intestinal catarrhs set up by other causes, and the excess of salt giving rise to such affections as neuralgia and asthma. Among skin diseases leprosy is frequently observed. As the doling out of remedial agents for this malady would occasion an undue drain upon the limited funds at our command, small doses of corrosive sublimate have been employed, with the result that patients often return for more. They say that under its use they feel better and gain strength, though to our eyes no improvement is observed.

Horns growing from the skin have been seen in two cases, one on the scalp and the other on the side. The latter was half an inch in diameter at its base, and grew from the skin over the middle of the ninth rib. To keep it from interfering with the movement of the arm it was at intervals pared.

Tumours containing air have been mentioned by authors, and by some the following might be so classed —

Man, æt 23. Over one parietal bone there was a somewhat circular tumour of 1 inch in elevation and 3 inches in diameter. Upon aspiration it collapsed, revealing round its base an irregular border of nodes and a ridge of nodes intersecting it. In the tumour there was no fluid. By the third day it filled out and was again aspirated with like result. There was no history to throw light upon its origin. The air-cushion seemed to protect the overlying skin from the irregularly-shaped nodes. The tumour only approached the temporal bone at the squamous portion.

In another man, upon bending the head downwards there was a tumour to be seen over the left frontal sinus. Its dimensions were three quarters of an inch deep and 1 inch in diameter. In the erect position it

disappeared. An opening in the bone over the sinus admitting air from the nose was the evident cause. At the age of 7 he had some active trouble in that neighbourhood, from which dated the origin of the tumour.

Acute rheumatism is rarely met with in this dry climate. Rheumatism, when it occurs, is limited to a part or a single joint, when several joints are affected, the cause is generally specific.

The contagious fevers are rarely to be seen. Nearly all adults have had small-pox, and for many years children have been vaccinated. Scarlet fever is occasional among children. Typhoid among natives I have seen but twice. Typhus and relapsing fever have only been epidemic after the famine of 1877.

The two cases next to be related are interesting to those who may have to treat opium-smokers,—the one showing the danger of suddenly stopping the drug in some who are habituated to it, and the other indicating how an apparently dying opium-smoker was, by the administration of the opium pipe, resuscitated.

The first had an abscess almost co-extensive with the back of the thigh. As he was extremely poor it was improbable that he had the wherewithal to regularly procure the drug, so that no opium was given him in hospital. Soon the pulse became extremely rapid, the temperature rose, and collapse looked imminent. The drug was then given with the result of the immediate subsidence of the alarming symptoms. By good feeding, together with gradually diminishing doses of opium, he made a good recovery.

The second was stricken down with dysentery and high fever. When I saw him he was apparently in a state of collapse, judging from his pulse and appearance, what food and medicine he had taken had been vomited. In a couple of hours I returned, expecting to find him lifeless, but his friends had meanwhile given him his opium pipe. The swiftly-developing fatal symptoms were arrested and the half-moribund man revived.

Epilepsy is not an infrequent malady. The following case of it is worth noting —

Man, æt 25, had epilepsy for 10 years, the attacks increasing in frequency till a year ago, when they came on daily and continued so for nine months, when his hand and arm were accidentally burned. Since then has had only two attacks, but soon after the burn the injured arm and hand began to hypertrophy, and now both palm and fingers are enormously enlarged, presenting the appearance of elephantiasis Arabum.

The Chinese frequently attribute their disorders to emotion, those of childhood to fright and of adults to terror, anger and disappointment, and here death may result from such causes. In cases occasioned by anger that I have seen among women, the pulse becomes rapid, the stomach extremely irritable, and prompt measures are advisable, as a fatal termination is not infrequent.

A youth of 18 I once saw die, the only apparent cause in his case being mental depression, as his father did not forward from Peking his school fees.

The case to be related came under my notice in 1876.

Man, æt 26. Since the age of 12, after a rebel raid, has attacks of the following description. Once a month for two or three days is unconscious of what passes, cannot sleep, is in a state of great excitement, his muscular power is then very great, does not ask for food, but eats what is placed before him, when opposed becomes frenzied, curses and strikes, and, unless restrained, runs off to the fields or hills. After the period of excitement, is completely exhausted, he falls into a deep sleep and remains in bed for a fortnight in a more or less torpid condition, then is well for a fortnight, and again the period

of excitement comes on For two years has had no attack, till a couple of weeks ago had recurrence of the trouble, which led him to consult me

In such a case the preternatural strength and the frenzy are regarded by the country people as being due to demoniacal possession To successfully practise among the natives it is well to remember their interpretation of such phenomena, neglect of this once led to my losing a case

It was one of loss of consciousness, to be remedied by the application of ice to the head. New unconsciousness such as occurs in fainting, the stupef of fever, and drunkenness is attributed to the spirit leaving the body and travelling elsewhere, which interpretation, as is well known, the unscientific Chinese hold in common with all people in a similar stage of development In applying the ice-bag I expressed myself as I should to a European, and stated I expected that in the course of a few hours, by the continuous application of ice, consciousness would be restored, whereas an astuter individual would have accommodated himself to the lower interpretation, and roundly stated that the application of the bag would in the course of a few hours bring back the wandering spirit Having applied the ice, I returned in an hour to see the result, and found that as it had not at once acted it had been removed, and the friends were howling for the spirit to return In discussing the case with a young dispenser I asked him if he held with his countrymen in such matters, and in proof that they were right he told me of a relative of his who, towards the termination of his fever, fell into a state of stupor, his mind wandered,\* and at length the spirit came to the house of a friend just as the family were at their evening meal Getting hungry, he asked for food, and not meeting with any response, he struck a bowl of rice from the mouth of a child just as it was in the act of shovelling it down When he came to himself\* he related how badly he had been treated at his friend's house, upon which inquiry was at once made and the fact ascertained that at that date a bowl of rice had actually fallen from the mouth of the child

The Chinese will not merely be benefited physically by foreign medical science, but mentally will be enabled to realise the true relationship of many phenomena which must otherwise confuse and stultify,—for is it not the province of science to interpret phenomena? In medicine, fanciful analogy or mere subjective correspondence has hitherto been their only guide, as witness their use of iron in blood diseases, as it produces a red colour, while certain parts of the tiger are given to the weak, that its great strength may be imparted to them. When the method of foreign medicine is explained to them, they will see that while such analogy may indicate a possible relationship, a real relationship can only be determined by careful induction, otherwise, as regards mundane affairs, there can be no reaching that solid ground upon which alone can repose the developed reason of man

The meteorological record is as follows —

	MAY	JUNE	JULY	AUGUST	SEPTEMBER
Mean minimum	53.4	61.7	72.2	70.5	63.4
Mean maximum	70.5	76.4	85.0	83.7	76.6
Difference between wet } and dry bulbs		9°	5°	5°	6°

\* For such phrases as "his mind wandered" and "he came to himself," see TYLOR, *Primitive Culture*, passim

## DR C BEGG'S REPORT ON THE HEALTH OF HANKOW

For the Half-year ended 31st March 1887

THE hot season of 1886 resulted in several cases of sickness, due to the direct influence of the high temperature acting in specially favourable circumstances. I had to deal with cases of all degrees of severity—the suddenly fatal sunstroke, ardent tropical fever and a few cases where the effect of exposure was only sufficient to place the patient's life in very great danger without coming under our nomenclature, cases where, however, the effects lasted a considerable time. The principal symptom complained of was pain in the head, with total incapacity for work or thought. In one class of these patients the face was ghastly pale, the mucous membranes and even tongue tissue almost perfectly white, the pulse rate about 35 to 40, small in volume and soft and compressible, great throbbing complained of in the head, loss of appetite, etc. In another class it took a more sthenic form, the pulse was full and bounding and the face flushed. In cases of sunstroke it will generally be found that the victim has neglected some necessary precaution, or while taking precautions has exposed himself when not in a fit condition to resist the tax on his vital resources, as man requires to be in good health to stand long exposure to such a high temperature as rules here during June, July and August, even though he take all proper precautions as to sun hats, etc. The more I see of tropical climates the more convinced am I that the vital tone has to be lowered before the sun has much chance against a moderately careful person. If we carry out the same programme in the hot weather as we do in cold, in our eating and drinking, making no allowance for the necessary deprivation of exercise, we cannot be in a good condition to resist the influence of the sun. If, in addition, we expose ourselves when over-worked or over-worried, or after late nights, we increase the chances of our return home “feeling the sun”.

Our diet during the hot weather should be as much as possible of fish and fowl, neither our meat nor our drink at that period should be of too stimulating a nature. I am an advocate of exercise for all without organic disease, and my opinion is founded on sound physiological reasoning. I would caution all against swimming after (or before) sundown during the extreme heat. One of the worst cases of sunstroke occurred in a young man who went out for a swim in the evening. Insensibility with convulsions lasted for five days, and though he ultimately recovered, yet his mental powers remained markedly affected.

When in the water the body is cooled but the head is congested. At such a time the water is very tempting, and many believe that after going in head first they are insured. It

may be so for a simple plunge and short swim, but not, certainly, if the stay in the water be a prolonged one

The whole subject of health in a tropical climate is most interesting, and I purpose at a future date entering more fully into the subject. It seems to me to be specially important that the matter be brought under the notice of those in China. Precautions are apt to be forgotten and rules of health to be neglected on the return of each hot season, and it is the new apprenticeship that has to be served every year that makes the climate so searching, though it is also true that the cool months build up the constitution and enable it, if properly guided, to stand the trying period of heat.

During the period under review I have nothing of special interest to record in the way of diseases influenced by climate, that has not been noticed before. Neither has there been any cholera or small-pox among the residents.

One patient died in Japan, where he had gone convalescent from typhoid fever. The case was a more than usually typical one. From the history given me of the fatal termination, perforation of the bowel, followed by peritonitis, must have taken place probably after indiscretion in diet. One infant died in a convulsion, and an adult from sunstroke. There have been many cases of the various kinds of malarial fevers, and I am still of the opinion that the new drain has anything but improved the health of the Settlement. It is satisfactory to hear that at last the land-renters consider something ought to be done to establish surface drainage in its place.

The advent of the cold weather always brings me a number of throat and bronchitis cases, but still I am able to report most favourably on the Hankow climate during the past seven years.

Among causes of difficult labour in my private practice, I have met with two cases where the only obstacle was the great size of the child's head, and I was able to overcome the difficulty by a procedure that I think is worth recording.

When the head is found to be too large to enter the brim of the bony pelvis, and when forceps fail to complete the delivery, the next step is generally to perforate the head, evacuate its contents and extract the body of the child. During the execution of this, the soft parts of the mother are liable to damage, and therefore any plan is a good one which may spare us such a calamity, though it may only be applicable in a limited number of cases. Where you have to deal with deformity in the bones of the mother, or where muscular action is so strong that the child is wedged tightly in the brim, nothing, of course, is left but the above plan of reducing the bulk of the presenting part and a delivery of it as soon as possible. But in a great many cases we find that the only fault is in the relative size of head and pelvis, viz, the head being too large to enter the brim either *before or after turning*. In such a case the proceeding I have to speak of has in two cases saved me having to expose the mother to the risks of instrumental operations on the child, and enabled the infant to be born with life, and though in both cases the child died after some hours, we never can tell but another case may be successful, and the life of the child is the least advantage gained, the increased safety to the mother being a greater consideration. I refer to the use of the ordinary long forceps as a powerful compressor, and by their use to fracture the flat bones of the skull, *then turn* and deliver, and it will be found that the head, rendered pliant by such treatment,

will come through a pelvis *base first* through which it would be impossible to drag it vertex first, even after the same manipulation, or base first without it

My first case was that of a lady with her second child. I had attended her in her first labour, and beyond the usual difficulty I had no special trouble. The head of the second child was too large to pass, and after all reasonable delay I applied forceps, but failed to drag the head through. On the point of perforating, I was struck with the mobile feeling of the head, and decided to turn, considering that if I failed then to get the head away, I could deal with it after extraction of the body. I turned, and was struck with the way I was able to force the head to mould itself to the canal, coming base first. The child was artificially resuscitated and lived for 24 hours.

My next case was a first labour, and after the water had escaped I still found the head rolling about on the brim of the pelvis unable to enter. I waited six hours, and then the condition of my patient showed that help was urgently needed. Long forceps were applied, but even when used to their utmost power as compressors and tractors, I was unable to force the head within the bony pelvis. I then remembered my former experience, and fractured, as well as I could, the flat bones, turned, and soon had the satisfaction of completing the labour with safety to the mother. Mouth-to-mouth artificial respiration established breathing in the child, which, however, only lived about three hours.

Objection may be made by some that if after turning we fail to drag the head through, we are placed at great difficulty in then attempting to reduce the bulk of the head from want of room, but I had an experience in the case of a Chinese patient, and found it rather an advantage than otherwise, for I was able with ease to divide the neck, and the head in the grasp of the forceps followed. I had to operate in this case in a small loft, in which there was hardly room for more than the bed, and which you had to reach by a ladder. There was one plank for standing on by the bedside, and one had to be most careful. I was called in to the case to give assistance to a brother medical man who had the case in hand, and, having failed to bring the head through in the usual way, intended to destroy the child and then extract. This, on consultation, was obviously the only course to adopt, but I brought it base first instead of the ordinary way. Let me, however, repeat that I do not, for an instant, hold that all cases should be done that way, all I say is that there are cases, such as I have described, where it is of the greatest use and for many reasons to be preferred.

An accoucheur alone can fully estimate the satisfaction of completing a labour without breaking the skin of child or mother, thereby diminishing the risks of subsequent infection with its fever. We in China have good opportunities of practice in difficult midwifery. The Chinese leave all the cases to midwives, and as they know absolutely nothing, only normal cases succeed, all difficult labours end generally in the death of the mother and child, unless nature takes pity on them. The reputation of the foreigner is making strong way, and in nothing is this so well seen as in the fact that the Chinese overcome their strong objection to allowing a male physician to treat their women. Every day the practice of sending to the foreign doctor for help in delayed labour is becoming more common, and a medical man in China has therefore to face many of the most difficult obstetric problems. Often we are only called in to have to pronounce a fatal verdict on both mother and child, delay and ignorant attempts to deliver having done their work. But, as a result of successful cases, there is good hope that with time the value of foreign assistance and instruments will be more and more realised, and sights such as most of us see frequently now-a-days will become things of the past.

A most instructive case of cancer of the breast has just had its usual termination. A fine looking healthy Chinese girl of 21 applied for admittance as pupil boarder to the convent. From her appearance I was asked to see her, as it was suspected that she was pregnant, and it was necessary to avoid such an awkward position of affairs, as it might lead to serious trouble with the Chinese. She strongly denied the charge, and refused to permit me to examine her, and it was only by using tact that I was able to palpate her abdomen, and was fortunate enough to feel the foetal movements. She was then given into the charge of her own people, and left after about three months' stay in the institution. The above history is only important as touching the question of the exciting cause of carcinoma in so young a girl. Some few months after this I saw the girl in my waiting-room, and from the information I possessed and her appearance I should say it was about a month after delivery, though she would not allow the charge. She had an anxious look, the breasts were large, and the glandular parts were developed and secreting milk freely. She drew my attention to a hard nodule, deeply seated in the right breast, and said it was painful. From the amount of adipose tissue and gland structure, it was very difficult to make a satisfactory examination of it, and taking into consideration the age of the patient, I decided to plan my operation so that I need not deform the breast. I therefore made a circular cut in the line of the lower fold of the breast, and turning it up I excised from among the adipose tissue a tumour the size of a marble, and for precaution's sake I cut freely and removed a clear  $\frac{1}{2}$  inch all round. It did not encroach on the gland. On section it proved to be a true scirrhus. Still, I replaced the breast, and it healed by first intention. After two months she returned with two small growths near the line of the cicatrix and another large one in the substance of the gland. I then removed all the breast freely, but left the axilla untouched, as there was no trace of enlargement in its glands, and I was still in hopes of having extirpated the disease, she being so young. She was looking markedly more cachectic, but made a rapid recovery. After about six months she again returned to hospital, with a mass the size of a closed hand developed on the old cicatrix, fungating and bleeding freely. She had marked cachexia, and the glands of the axilla were affected. Once again I removed all and cleaned out the axilla. I, of course, now had a large surface exposed, seeing that my last operation had been done almost entirely in cicatricial tissue. I made free use of the thermo-cautery. She made a slow but fair recovery, but just as she was again going home, about a dozen points looked suspicious and rapidly developed into distinct nodules in every corner of the scar. I did not feel justified by her state of health in again proposing an operation, seeing that now I could have no reasonable hope of stamping out the disease. Nor did she wish for one. She went home, and I have recently heard of her death. The interesting points in the case are the age of the patient and the chance of seeing, as I did, the beginning and course of the disease and its virulence in spite of the free removal.

I should like to sound a note of warning against the use of celluloid catheters. The large sizes may do, and certainly I will grant them some special advantages, such as smoothness, etc., but after my experience, I consider it to be culpable foolhardiness on the part of anyone to attempt to use them in the smaller sizes. I have had two cases of fracture of a very small size, one case where the piece was worked out along the canal by manipulation, etc., the fragment, fortunately, being fairly long, but in the other the part entered the bladder, and one of the most difficult operations in surgery had to be performed, viz, lithotomy, without the guiding help of a staff, the strictured canal being too small to admit of its use. There is no catheter but the silk web one which will stand this climate, and even then you need to be careful in using an old No 3 or 4.

I would, however, go further than this, and say that no man has any right to use anything under a No 6. If his stricture will not admit it, let him go to a surgeon and

have the stricture made to fit his catheter, and not to the chemist to get a catheter to fit his stricture

Trichiasis and entropion of upper eyelid is a very common disease in China and the cause of endless cases of blindness. I am indebted to Dr MILLES, of Shanghai, for drawing my attention to BUROW's remarkably efficient operation for its cure. The results are most satisfactory if thoroughly done, and the rapidity with which the single cut can be made does away with all necessity for giving chloroform. If you examine most cases of entropion you will find the cartilage is only at fault, the condition being produced by its contraction and curvature. This is well seen on forcibly turning out the offending eyelid. The operation consists in cutting freely along the bottom of the groove so formed, and dividing all structures of the eyelid out to the skin and from end to end of the cartilage. I have made a series of bamboo spatulas to suit eyes of different shapes, over which to evert the lid. Standing behind the patient you press the proper sized stick at the root of the eyelid, seize the free edge with artery forceps, and you can evert the most distorted eyelid with the greatest ease. You can then make your cut with perfect security, even in the most troublesome patient, as the flat part of the bamboo intervenes between your knife and the eye-ball.

Causes of failure that have come under my notice have been from want of free cutting, especially at inner and outer ends of cartilage, also where the cartilage is very narrow, the operation seems only of temporary advantage. After operation, firm bandaging with pads of cotton wool for the first 24 hours, then daily forcible everting of lid. The result is free from deformity.

Some time ago I saw a case of entropion that had been operated on by a Chinese doctor. He had strangulated enough of each upper eyelid (between two needles tied at each end with string) to correct the deformity, and then let them cut their own way out. The result was very good, being a fine linear scar.

In the *British Medical Journal* for 25th April 1885 there is an article on Leucoderma, a disease of which we in China see a great deal. Dr BRITO gives a very good description of its appearance, though my experience differs from his on certain points, viz, it seems much more common on the trunk than on the face, and there seems a decided disturbance of vascularity in the part, experience having shown me that whenever I had to retain one of those white patches in the flap of an amputation, it invariably sloughed. The influence of sex has not been marked, but I know some cases where every menstrual period the marks show up, and disappear as soon as it is over. I have never seen it in children. And as a rule the hairs on the patches are also white. I have been able to do nothing in the way of treatment.

As a contribution to the pathology of the disease, I wish to put the following case on record.

A most intelligent boy of one of the hong's consulted me for the cure of a white patch on either wrist. He stated that two years before, during the hot weather, he was suddenly seized with illness, which he could only describe as "very hot inside," and great pain in throat. A Chinese doctor applied some



medicine to the inner aspect of wrists, which caused a large blister to form, and the present marks were the result. The marks answered perfectly to the description of vitiligo, being pure white, size half a dollar, outline irregular, skin smooth, neither raised nor depressed from level of healthy skin, perfectly pliant and certainly not cicatricial, no loss of sensation. Has seen no change in them since they came. Knows more than a hundred Chinamen marked in the same way by the same doctor. Knows the skin disease common in China where skin is similar, and which the Chinese attribute to a certain wind.

I also had a case where the patches were more sensitive than the healthy skin, and itchy without discernible cause.

*Puerperal Eclampsia about the Eighth Month of Pregnancy, Os dilated and Labour induced, Recovery*

—I was called about 2 A.M. one day to a Chinese patient, aged 24, pregnant with her third child, former labours had been natural. She had been for the last month greatly troubled with anasarca, and her urine was loaded with albumen. At my visit she complained of having been startled by seeing flashes of fire before her eyes, and was making strong but ineffectual attempts at vomiting. Her skin was cool, and pulse 90. I gave a mustard emetic, and left her sleeping quietly. I was again called at 4 A.M., and was told she had had a slight fit, lasting five or six minutes. While I was with her she was again seized. The body became rigid and slightly bent back, arms extended in front, hands closed with thumbs in the palms, loud, stertorous breathing, froth from mouth and spasms in the facial muscles, head turned to right shoulder, teeth tightly clenched. I decided to induce labour, and after giving chloroform I introduced my hand into vagina, soon dilated the os to admit first one, then two, then three fingers. The edge felt thin, hard and resisting, feeling as if it would lacerate easily, so I had, after 15 minutes' work, to content myself with introducing a gum-elastic catheter well up to the fundus. Water began to drain off in large quantities, and there was no recurrence of the fits, and the patient slept off and on.

At 8.30 A.M. labour set in, and at 11 A.M. the child was born. Mother and child did well. It is worthy of note that whereas the other two children are perfect, this child has a vascular tumour on the scalp, both ankle-joints are malformed, permitting the child to walk, if it so please, on either side of the foot, which can only be kept in its proper position by a specially-made boot, and it has a stiumous enlargement of one of the phalanges of the left hand. Otherwise it is a large, fat child.

The hospital continues in the same satisfactory state as regards attendance and providing me with most interesting surgical cases. Last year's record was 399 major operations with one death. I keep no record of the cases of minor surgery done in the out-door department.

I am making free use of cocaine, and find an 8 per cent solution quite strong enough to abolish pain, even in the excision of considerable tumours, and in other operations.

One afternoon's work may be worth recording, with the results taken three weeks after—too soon for a very favourable picture, as the parts had not yet recovered from the operations, but the patients were leaving for their homes. The woodcuts bring out the difference between the malignant and non-malignant tumour, and though in the after pictures the man with the larger tumour does not yet look so presentable as his friend, yet he has reason to congratulate himself, because I anticipate speedy recurrence in the other case, and in a position that will place it out of the power of the knife to remove it then—death.



PLATE I—*Non-Malignant Tumour*



PLATE II—*Malignant Tumour*

Through the kindness of Mr Harbour Master ARMOUR I am able to give the annexed table

ABSTRACT of METEOROLOGICAL OBSERVATIONS for the Years 1885 and 1886

DATE	BAROMETER				THERMOMETER			WEATHER				RIVER LEVEL	
	Maximum	Minimum	Mean	Range	Highest for the Month	Lowest for the Month	Durnal Mean in Shade	Fine Days	Rainfall.	Cloudy or Overcast	Snowfall.	Rise	Fall.
1885	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>° F</i>	<i>° F</i>	<i>° F</i>					<i>Ft in</i>	<i>Ft in</i>
January	30 65	30 14	30 39	0 51	56	26	41	15	7	8	1	4 2	0 8
February	30 56	30 12	30 34	0 44	62	28	45	7	1	18	2	11 8	2 4
March	30 65	29 98	30 31	0 67	83	34	58	9	4	18		8 7	7 8
April	30 50	29 80	30 15	0 70	86	35	60	12	11	7		14 6	
May	30 29	29 70	30 00	0 59	86	55	70	19	12			8 1	
June	30 30	29 78	30 04	0 52	95	61	78	20	10			6 2	
July	30 10	29 61	29 85	0 49	98	66	87	27	4			1 8	
August	30 08	29 72	29 90	0 36	99	71	85	22	8				2 2
September	30 35	29 95	30 19	0 38	92	61	76	25	4	1			6 9
October	30 45	30 10	30 27	0 35	85	54	69	21	3	7			5 10
November*	30 80	29 97	30 38	0 83	77	31	54	24	1	4	1		17 2
December	30 65	30 07	30 36	0 58	68	32	50	13	8	10			3 5
1886													
January	30 63	30 22	30 42	0 41	60	23	41	15	2	13	1	0 5	6 3
February	30 72	30 04	30 38	0 68	55	23	39	4	2	18	4	1 2	2 1
March	30 45	29 80	30 12	0 65	70	35	52		15	16		16 8	3 5
April	30 32	29 62	29 97	0 70	82	47	65	7	14	9		15 5	4 1
May	30 14	29 72	29 90	0 42	89	55	72	5	16	10		3 8	3 4
June	30 00	29 55	29 77	0 45	98	63	80	6	17	7		7 10	1 6
July	29 96	29 58	29 77	0 38	104	74	89	18	3	10		3 0	1 4
August	29 99	29 45	29 72	0 54	98	74	86	16	5	10		3 6	2 11
September	30 23	29 88	30 05	0 35	90	63	76	22	3	5		1 2	2 11
October	30 56	29 87	30 21	0 69	90	40	65	10	14	7		0 9	2 10
November	30 55	30 13	30 34	0 42	70	34	52	13	3	14		0 2	10 10
December	30 57	29 93	30 25	0 64	62	34	48	12		19			17 0

\* On the 3rd November a slight shock of earthquake was felt, lasting about three seconds

## DR G R UNDERWOOD'S REPORT ON THE HEALTH OF KIUKIANG

For the Year ended 31st March 1887

DURING the 12 months just ended the health of foreigners residing here has been much the same as in former years. The diseases most commonly met with have been of the usual character, and there has been no epidemic. Malarial affections are the most prevalent ailments, and children born in the port rarely escape an attack of quotidian or tertian intermittent during the spring and summer.

Children from home or other parts not malarious are less liable to aguish complaints. These onsets yield readily to quinine, and the good food, clothing and sanitary condition of their houses give these youngsters a great advantage over their young Chinese neighbours, who, in districts round Kiukiang, suffer much from malarial troubles, and die in large numbers from the results, as seen in hypertrophied spleen and liver, anæmia, ascites and anasarca, dysentery and chronic diarrhoea.

No foreign child has been under my care in the course of the last six years who has shown any of these sequelæ of malarial poisoning. One adult European has been professionally attended who suffers much from dumb ague, and has frequently headache, feeling of chilliness, slightly increased temperature and pulse, and all the misery of an impending attack which never develops itself.

Tertian and quartan of an irregular type have been met with in eight cases during the year, the patients being adult males. The mischief was readily subdued except in those who came here with a predisposition left by former attacks, and in these cases a change to the hills or down river was found necessary. Seven of the eight affected were living on the back street and near the pond adverted to in former Reports. All the compounds in the Concession have been raised with mud taken from the bed of the river or adjoining creek, and there is little difference as regards dampness except in very high-water seasons. It is certain, therefore, that the stagnant pond referred to continues to exercise a bad influence on the health of those in its proximity. The chief results of malaria, seen in those long resident, are anæmia, not generally pronounced, and an infirmity of temper, and disposition to be worried by petty annoyances that would hardly be noticed in health.

A case of typhoid was brought in from the country when the disease had all but completed its course. Abortion, attended with considerable hæmorrhage, ushered in the attack, and for the first week masked the symptoms somewhat. After eight days there was no doubt as to the diagnosis, the morning and evening temperature variation, the flushed face, the condition of the tongue, the fulness of the abdomen with gurgling in the right iliac region on pressure, and the peasoup looking stools, all taken together being characteristic. The temperature was never high, though from the severe loss of blood the patient

was low and semi-conscious a good part of the time. Congestion of the middle portion of the left lung, anteriorly and posteriorly, came on at the end of the third week with increased temperature and other concomitant signs.

Fortunately the lung substance affected remained limited and gradually cleared up. Pain over the left hip-joint was complained of during the whole illness, and an abscess which formed later over the trochanter major kept the temperature above the natural when the fever had left the patient. It was opened as soon as fluctuation could be detected, and, on the pus escaping, the temperature fell to normal. Blood was seen only once in the stools, and one doubtful spot on the abdominal wall. This was the patient's second attack within the last 10 years, both having been in China.

The surroundings of the residence in a dirty native street, with a water-supply open to contamination from many sources, were quite enough to explain the origin of the disease.

Typhoid, as we know it, does not seem to be at all common among the Chinese here, though most of the factors favouring it are present in superabundance. There is no system of drainage, and it would be difficult, on account of the little fall, to drain the place efficiently at that season when decomposition is most rapid. All the ground built upon is saturated with the sewage of scores of years, if not of centuries, and in any side street or alley and in very many houses may be seen putrefying animal and vegetable matter in unstinted quantity. Foul smells meet one everywhere, and the well water largely used is a solution of organic salts. On the other hand, native houses are much more open than those of foreigners, in most cases less from purpose than from imperfect construction. The doors are kept open all day, so that practically it is life in the air of a courtyard, though, of course, at night the breathing space is limited, and in illness that is further circumscribed by curtains and other contrivances to keep draughts from the sick. Cold, unboiled water is rarely or never used when tea can be had, and to this much of the immunity from typhoid must be due. The population suffers much from this insanitary condition of things, in that the average health is poor and the power of resistance small. Anæmia is very common among those who follow in-door occupations, and, in shop-keeping and well-to-do families, especially among the women who are less out of doors than all others. Typhus is often seen, and not a year passes without its being epidemic in some of the towns and villages of Northern Kiangsi. It is rapidly fatal, from the general low state of health and want of sufficient nourishment that obtain in many of these places, and one hears not rarely of 15 or 20 per cent of the inhabitants of a country hamlet having perished from that cause. The disease has not once attacked foreign residents in this district.

A malady resembling plague, so the symptoms described would indicate, was prevalent in certain districts of Southern Kiangsi last autumn. Particulars were not to be had.

General diseases, specially affecting the throat, are little known here, while simple throat affections are met with often enough.

Diphtheria has never, I believe, been encountered among foreigners in Kuukiang, and in a series of over 25,000 Chinese treated at the hospital, there has not been one case. In Chungking it is, according to medical missionaries, an important factor in mortality statistics.

Acute lung affections are not frequent among Europeans here, and when they do occur, are, as a rule, easily traceable to imprudent exposure or such cause.

A case of pneumonia, affecting both bases, came under treatment in October. The patient, 25, not robust to begin with, had been living in the interior, and for some weeks had not been in condition from the unsuitable fare he was bound down to, when, after exposure to cold, he had a chill. He left immediately for Kinkiang, but was storm stayed for days in a hut on the east shore of the Poyang Lake. A journey of 110 miles in 12 days brought him here very ill indeed, and he could give no clear account of how the time had passed. With careful nursing, convalescence was after a time established, and the recovery, if slow, has been satisfactory.

Ethnetic troubles are seldom met with, a circumstance to be wondered at considering how prevalent they are among the Chinese. As seen in Europeans, the type is mild.

Washerman's itch is the most common skin disease of parasitic origin met with in foreign practice, the contagion being conveyed by the water used in washing clothes. It is less frequently seen at the dispensary, most probably in the case of the poorer classes at all events, owing to the long intervals between the cleansing of their inner clothing. Other vegetable parasitic skin affections are certainly rife enough among them. Now and then a form of pityriasis calls for treatment, which is also far from rare in native dispensary work. It is easily got rid of in the majority of cases by a lotion of soda hyposulphite. Scabies is occasionally found on the hands of foreign children, and is quickly cured by ordinary applications. Eczema between the toes is a not unusual source of annoyance to adult Europeans in summer, and is at times most obstinate, unless rest can be had.

One patient who left during the year has died at home from sprue. The disease was so far advanced as to be all but hopeless before the sufferer left China. The chief symptoms were (1) shallow ulcers of the mucous membrane of the cheeks and gums and, at times, of the tongue, which was smooth and planed looking and not coated with fur, (2) soreness of the mouth, tongue and gullet on anything not bland being taken, (3) want of appetite, (4) weight at the epigastrium and discomfort and distention for hours after food, (5) constantly recurring diarrhoea, with light-coloured stools, containing undigested food, and (6) increasing anaemia, emaciation and loss of strength. The heat and roughness of the voyage had an unfortunate effect on the patient, who just lived to reach home. Hardships and exposure in the interior had much to do with the causation of the disease in this case.

A diet exclusively of milk was the treatment successfully carried out in two cases shown to me lately by a professional friend. Both patients were under 36 years of age, and had not been over 15 years in China, as compared with an age of 54 years and a residence of over 25 years in the fatal case. In them, too, treatment was begun at an early stage of the disease.

During the year there have been three births—two males and one female, and one death from chronic alcoholism. 6,450 Chinese came to the dispensary during the 12 months, and of these over 300 remained as in-door patients. Eye cases, of which there were 590, contributed largely to the latter, trichiasis, inversion of the eyelids, granular lids, corneal ulcers, leucoma and iritis being the affections most commonly treated. Trichiasis and conjunctivitis in its more severe forms are very frequent in the district of Tu-ch'ang-hsien, on the east side of the Poyang Lake, some 30 miles off. The irritation produced by the fine powder carried in the air from the many sand-hills in the locality leads to inflammation of the ocular and palpebral conjunctiva in all degrees up to absolute destruction of the eye as an organ of sight. In spring and summer strings of patients set out thence for Kiukiang, he whose sight is least injured leading the others, all in hope of relief and having much faith in the

power of the knife. Last summer the river was comparatively low, with little subsequent malaria, and on that account cases of rapidly-sloughing corneal ulcers, such as are frequent after continued intermittent, and for which the best treatment used here has so often been of little avail, were fewer than in former years. Iridectomy after leucoma is exceedingly useful in many cases at the hospital, and that, with artificial pupil, are the usual operations on the interior of the eye. Cataract is comparatively uncommon.

A small melanotic sarcoma of the ocular conjunctiva was removed lately. It was situated on the upper and outer surface of the sclerotic conjunctiva of the right eye, its base being spread over a surface of  $\frac{2}{3}$  of a square inch, and with a depth at the thickest part of  $\frac{1}{8}$  of an inch. The patient said that it had been cut off by a Chinese doctor three years ago, but had quickly returned. In colour it resembled exactly a piece of iris removed in iridectomy, and, though not painful, its size gave rise to much discomfort and irritation of the palpebral conjunctiva. It was easily dissected off the sclerotic, and the use of a 10 per cent solution of cocaine made the operation all but painless.

Cases of venereal disease have been fewer than last year, from the large reduction in the number of soldiers in the garrison, among whom, as among sailors on native boats, these affections are more prevalent than in the ordinary population. Few of the public women escape syphilis sooner or later. While generally in a mild form, it is occasionally very severe. Gonorrhœa seems to be less frequently followed by stricture in Chinese patients of this district than at home. The explanation is to be looked for in that the condition of body of the well-nourished European is much more favourable to inflammatory deposit with permanent thickening and contraction than is that of the poorly-fed anæmic native. Retention from prostatic disease or from hypertrophy in old men is very rare, not one case of the latter having come for treatment in the past six years. Pulmonary troubles are met with all the year, but pneumonia is most frequent in hospital practice in May and June. Several thousands of workmen from country districts are employed in Kiuksiang at that time in preparing tea for the foreign market. The sudden and considerable fall of temperature, which here often follows a thunderstorm, finds these men unprepared, especially during the night, and without other protection than the clothes they wear. Pulmonary inflammation is the result. There being little heavy machinery, accidents are not frequent, and operations for the removal of tumours and for diseases of bones and joints are the principal in native practice. Fractures are brought for treatment now and then, but the patient, in many instances, goes away before he ought. After his limb has been in splints for a fortnight or less, he as a rule requires to be taken home to his mother who is ill or lamenting his absence. The mothers of patients not quickly cured are liable to much sickness, and, indeed, are generally at the point of death in this part of China. One case of epithelioma of the lower lip presented itself for treatment. Unfortunately, operation was not permitted. It is difficult to understand why the disease is not encountered more frequently, considering that almost everyone smokes. Brass, porcelain, glass, jade and bamboo are all used in making mouth-pieces, and the finish is often far from perfect. Something more than irritation is required to account for the beginning of the mischief. The tea-house pipe, common to everybody, must be an active agent in disseminating syphilis in China, to judge from the well-known glass-blower's tube cases of the books.

The following case of opium-poisoning presents some points of interest —

HWANG SHIH, 23, childless, was brought to the hospital at 8 P.M. on 20th February, her husband stating that she had swallowed a quantity of extract of opium three hours before. Her face was cold to the touch and pallid (the out-of-door temperature was about 50°), while the extremities, being protected by wadded clothing, were warm, the pupils were contracted and the pulse slow and feeble, the right being stronger than the left which was just perceptible, the breathing was slightly stertorous, respirations, 12, mucous riles were audible to those standing near, and with each expiration a frothy fluid showed at the nostrils. The patient was deeply comatose, and the full current of a GAIFFE's battery applied to the lips had no effect in rousing to consciousness. The facial muscles responded at once to the stimulus, but those of the fore arm acted less readily. Within a few minutes of the arrival of the patient, the stomach was washed out as she lay on the bed, and the contents gave out an odour of alcohol and opium.  $\frac{1}{12}$  grain of atropine was injected subcutaneously, and followed at once by an injection of 5 minims liquor strychnine. Artificial respiration was begun as soon as the stomach was empty and kept up, and to assist the failing heart, very warm poultices were frequently applied over the cardiac region. Within half an hour the face began to get warm and the paleness less, and the pulse gained in strength and quickness. Gradually the mucous riles diminished and disappeared, and the pupils dilated to their full extent. Then came on, every few minutes, slight tonic spasms of, at one time, the neck, face and limbs, and at another of the muscles of the back. Towards midnight, with the better circulation, the muscles of the fore arms could be thrown into a state of contraction by a weaker current, as yet, however, there was no sign of consciousness on the part of the patient. Hot bottles to the trunk and extremities and artificial respiration were kept up till 4 A.M., when there were signs of returning sensation, the arm or hand to which the current was applied being withdrawn. During the night, weakening of the pulse quickly followed the stopping of artificial respiration, even for a few minutes only. The patient was conscious at 4.30 A.M., and a few hours later had quite got over the effects of the poison. One avoidable accident marred to some extent the happy result of the treatment. One of the poultices applied over the cardiac region was too hot, and caused sloughing of the skin over the whole of the left breast. It was long in healing, and proved a painful experience to the patient. The quantity of opium taken, as nearly as could be found out, was from 15 to 20 grains in a pint of Chinese wine. The dose of atropine was very large, but as to its good effect on the respiration and in arresting œdema of the lung, there is not the slightest doubt in my mind.

A case of infanticide under peculiar circumstances was met with lately

One night last month my assistance was desired for the relief of a woman in labour. The patient was a strong and healthy-looking quadripara of 32. A male child had been born two hours before, and the right hand and fore arm of a second was protruding from the vagina. The head was in the right iliac region and the face looking forwards. Chloroform was given, version performed and the patient delivered of a living female child. The first-born had been removed from the room, and, asking where it was, I was told that the woman was the second wife of a shopkeeper in Shanghai, and was in charge of a branch shop here. In the prolonged absence of her husband, she became pregnant. Being very desirous that it should not be known, she, expecting that the labour would be natural, did not call in a midwife, as under ordinary circumstances she would have done. On the birth of the child she throttled it at once, and sent her paramour, the head shopman, to sink the corpse in the lake. Unfortunately for their hopes of secrecy there was a second child which did not come naturally, and it was necessary to call the midwife. She recognised her powerlessness in the case, and sent for help. The woman was sitting behind the counter as usual within 10 days.



I am indebted to Mr Harbour Master GUNTHER for the following abstract of meteorological observations —

MONTH.	THERMOMETER				RAINFALL	
	Maximum		Minimum		Days	Inches
	Highest.	Lowest.	Highest	Lowest.		
1886	°	°	°	°		
April	85 0	57 0	70 5	43 5	14	7 02
May	94 0	62 0	75 0	50 0	15	7 53
June	95 0	72 0	80 0	60 0	18	15 34
July	101 5	79 5	84 5	74 0	5	0 49
August	102 0	83 0	82 0	73 0	13	5 34
September	92 5	71 0	78 5	62 0	6	0 74
October	93 0	51 0	72 0	46 0	11	9 22
November	69 5	50 0	57 0	41 0	3	0 21
December	65 0	47 0	45 0	30 0	2	0 06
1887						
January	64 0	27 0	40 0	19 0	12	4 59
February	60 0	31 0	47 0	20 0	6	2 77
March	80 0	42 0	59 0	35 5	14	2 99

Number of days on which rain fell during the years, 119, inches, 56 30

# DR E A ALDRIDGE'S REPORT ON THE HEALTH OF WUHU

For the Half-year ended 31st March 1887

THE following abstract is from the Harbour Master's meteorological register taken here (latitude,  $31^{\circ} 19' 12''$  N , longitude E of Greenwich,  $7^{\text{h}} 53^{\text{m}} 28^{\text{s}}$  ) —

METEOROLOGICAL TABLE

MONTH	THERMOMETER.			BAROMETER			RAINFALL
	Highest	Lowest	Average.	Highest	Lowest.	Average	
1886	°	°	°	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
October	83	44	65	30 54	29 98	30 22	7 50
November	66	34	52	30 59	30 20	30 38	0 10
December	58	30	36	30 54	30 08	30 36	
1887							
January	57	19	32	30 46	30 08	30 30	1 09
February	52	15	36	30 50	30 03	30 30	1 60
March	71	34	50	30 42	29 96	30 00	3 72

The first three months were bright, fine and pleasant, and there was little sickness among either foreigners or natives. The cold during the last three was the severest that has been experienced here for many years. A great amount of misery and suffering was felt by the poor, many were starved and frozen to death, and many had their houses destroyed by the heavy weight of snow, the falling in of the roofs and walls in some instances crushing the occupants. Snow fell during the winter altogether for 154 hours, and lay on the ground for about five weeks.

There are now 48 foreign residents—17 females and 31 males. Their health during the period under review cannot be called very good.

Malarial fevers were the predominating complaints. Seven foreigners suffered from one or more attacks of intermittent fever, and two from remittent fever. Cases of the following diseases were also observed: chronic rheumatism, sciatica, bow ague, acute and chronic diarrhoea, hæmorrhoids, gonorrhoea, dhobie's itch, conjunctivitis. In my attendance on the above cases I observed no peculiarities worthy of special record.

Two missionaries arrived from up country, suffering from acute dysentery, and the treatment by large doses of ipecacuanha and morphia was most successful.

I understand a dispensary is to be opened at Yi-chi-shan, near Wuhu, by the American Methodist Episcopal Mission, under the superintendence of Dr STEWART.

## DR R G WHITE'S REPORT ON THE HEALTH OF CHINKIANG

For the Year ended 31st March 1887

FOR the last 12 months the health of this port has been good amongst foreigners and natives. The weather was fine, and, excepting the fact that summer was prolonged, was all that could be desired. The wheat and rice crops were exceptionally good, consequently there was less poverty and less disease among the natives. In June the fall of rain was considerable. In February at least 4 to 5 feet of snow fell, the frost was not severe. To these two last facts we are no doubt indebted for the present verdant condition of the fields and hills.

During the last year there have been five births here of foreign children—three males and two females.

The cases were all natural with one exception, wherein, in consequence of some disproportion, the application of forceps was required.

Chronic rheumatism, diarrhoea and intermittent fever were the chief complaints among foreigners. Of fever, two specially severe cases presented themselves, but speedily yielded to large doses of quinine.

A case of cystitis came under treatment in a foreigner, who imprudently took violent riding and walking exercise while recovering from gonorrhoea. The usual symptoms were present, with, in addition, considerable loss of blood. Treatment by hot baths, hyoscyamus and gallic acid rapidly brought about complete recovery.

The following case of displaced testicles is of interest —

A Chinese presented himself whose testicles were, on examination, found abnormally situated. The left had not descended from the inguinal canal, where it was incarcerated, and at times was slightly painful. The testicle which should have occupied the right side was fixed in the middle line of the perineum. The patient explained that the testicles had always been in these positions, and were no inconvenience to him. His reason for calling on me was because he had been married some years and had had no family.

An interesting case of elephantiasis of the scrotum lately presented itself.

The growth must have weighed at least 20 or 25 catties. Having no suitable conditions for operating here, I agreed to pay steamer expenses to Shanghai, where Dr JAMIESON offers hospitality to all the cases I can send him. The patient, however, finding it so easy to receive relief, demanded a present of bedding, etc., thus illustrating the Chinese proverb, "The benevolent door is difficult to open."

A poor fellow, of about 26 years of age, came from the country, with an enormous tumour of the right thorax.

The growth extended from the floating ribs along the right border of the sternum up to the axilla, posteriorly it reached from the posterior border of the axilla to the lower limits of the ribs. It had existed five years. The patient was much exhausted, the tumour was firmly fixed, evidently involving the ribs, and was beyond the aid of surgical operation.

In a case of diseased ankle-joint, where amputation, if permitted, would have been the proper treatment, I lately excised the astragalus, most of the os calcis and the malleolus,

The only marked result was great relief of pain, but as the drain on the patient's system was not much affected by the operation, amputation of the leg will eventually have to be performed

For the subjoined meteorological abstract I am indebted to Mr Harbour Master POYNTER

METEOROLOGICAL TABLE, April 1886 to March 1887

MONTH	THERMOMETER				BAROMETER		RAINFALL	NO OF DAYS
	Highest.	Lowest	Average Highest	Average Lowest	Highest	Lowest		
1886	°	°	°	°	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	
April	83	42	69	51	30 24	29 62	2 63	7
May	88	52	72	60	30 04	29 60	3 08	8
June	91	57	81	66	29 91	29 50	10 04	11
July	100	70	95	76	29 84	29 55	3 82	7
August	97	72	88	79	29 77	29 45	3 31	11
September	82	60	75	67	30 25	29 75	2 58	3
October	82	47	73	56	30 71	29 80	4 09	7
November	65	33	56	43	30 71	30 21		
December	56	31	48	39	30 76	30 10		
1887								
January	56	23	46	33	30 72	30 10	1 56	5
February*	56	20	48	30	30 76	30 30	1 06	2
March	74	31	59	45	30 55	29 80	1 41	5

\* Four days snow

# DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 31st March 1887

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the Six Months ended 31st March 1887 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  $8^{\text{h}} 5^{\text{m}} 45^{\text{s}}$  \*

DATE	Barometer at 32° F	THERMOMETER		Amount of Vapour in the Air per Cubic Foot	Hu- midity, 0-100	Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	REMARKS	
		Diurnal Mean Tempera- ture in Shade	Extreme Tempera- ture in Shade									
1886	Inch	° F	° F				Miles		Inch	Inch		
Oct	Max	30 409 (30)	75 6 (10)	84 4 (10)	02337	89 (28)	14 (24)	32 (11)	N 42° E	3 013	5 293	Fourteen rainy days. Thunderstorms on the 19th and 27th
	Mean	30 077	65 7		01643	76	10	12				
	Min	29 812 (11)	50 0 (31)	42 6 (31)	00656	65 (30)	8 (15)	1 (1)				
	Range	0 597		41 8								
Nov	Max	30 481 (31)	59 5 (3)	67 5 (3)	01261 (11)	82 (12)	14 (10)	40 (18)	N 15° W	2 743	0 343	Five rainy days. First hoar frost on the 23rd, the thermometer below the freez- ing point for the first time
	Mean	30 295	52 3		00953	73	10	9				
	Min	30 067 (18)	36 5 (30)	30 2 (30)	00487 (30)	59 (18)	7 (26)	1 (20)				
	Range	0 414		37 3								
Dec.	Max	30 551 (3)	50 7 (13)	59 4 (13)	00987 (5)	86 (5)	13 (20)	54 (7)	N 53° W	3 373	0 154	Two rainy days
	Mean	30 325	40 4		00547	67	9	12				
	Min	29 996 (13)	31 8 (8)	24 1 (11)	00340 (15)	53 (10)	6 (24)	1 (17)				
	Range	0 555		35 3								
1887												
Jan	Max	30 517 (8)	46 2 (10)	57 9 (1)	00995 (10)	100 (18)	20 (18)	37 (19)	N 15° W	1 292	7 687	Eighteen rainy days
	Mean	30 283	37 4		00637	86	13	14				
	Min	29 936 (10)	28 8 (20)	23 5 (7)	00508 (20)	66 (7)	7 (7)	0 (7)				
	Range	0 581		34 4								
Feb	Max	30 579 (15)	48 4 (19)	59 2 (19)	00892 (19)	92 (22)	18 (25)	34 (24)	N 35° E	1 736	1 513	Eight rainy days
	Mean	30 293	39 9		00640	78	12	12				
	Min	30 105 (24)	30 6 (3)	26 1 (18)	00460 (3)	63 (15)	10 (18)	0 (18)				
	Range	0 474		33 1								
March	Max	30 415 (24)	64 6 (28)	81 0 (28)	01214 (28)	93 (5)	17 (30)	41 (11)	N 72° E	3 241	1 374	Ten rainy days
	Mean	30 180	47 9		00835	75	12	13				
	Min	29 852 (28)	40 1 (18)	30 0 (19)	00509 (18)	55 (27)	9 (24)	0 (18)				
	Range	0 563		51 0								

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich.

NOTE —The figures in parentheses indicate the days on which the observations to which they are appended were made. Under the headings "Diurnal Mean Temperature in Shade," "Humidity," and "Ozone" they indicate the days on which the mean readings were respectively highest and lowest.

For the above abstract I am indebted to the kindness of the Rev Père DECHEVRENS, S.J.,  
Director of the Zikawei Observatory

The meteorology of the half-year does not call for much remark. The weather was dry and mild up to the end of 1886, and after a couple of rigorous weeks in January the remainder of the first quarter of this year left little to be desired. Several cases of small-pox occurred among foreigners, but only one proved fatal. The prevalence of enteric fever must not be estimated from the satisfactory fact that no death occurred under this head. In my own practice I had six cases, four of them being in children, and in two of these latter all the typical symptoms were present except diarrhoea.

MURCHISON \* states that he had observed six instances of parotid bubo after typhoid fever, of which five died. CHOMEL, LOUIS and GAIRDNER each report a case. CHOMEL, according to MURCHISON, regarded these swellings as entirely and auspicious, while TROUSSEAU † is emphatic in declaring them a most disastrous complication, almost always bringing death in their train. In more recent medical literature I can find only one case followed by recovery ‡.

In January a lady who had been but a few weeks in Shanghai contracted typhoid fever of exceptional gravity. About the middle of the third week both parotid regions became brawny, but it was not until several days had elapsed that deep-seated fluctuation could be detected. When the swellings first appeared all the general symptoms were very menacing, but these diminished in intensity before the position of the pus could be ascertained with sufficient accuracy to justify the deep incisions required. Recovery ensued.

The last fatal case of cholera for the season occurred on the 21st November. The admissions for cholera during 1886 to the Shanghai General Hospital, where, practically, all cases are treated, were 22, and the number of deaths 17, showing a mortality of 77·27 per cent, and confirming the observation already frequently made in these Reports, that the form of the disease observed here is exceptionally severe. The total number of deaths for the year from cholera was 20, to which residents contributed only 3. That is to say, cases of cholera, fatal and otherwise, occur almost exclusively among people who are suddenly brought under the sway of the local conditions producing the disease, while a considerable number of foreigners live habitually under these same conditions without appearing to suffer in an extraordinary degree from them, and certainly without contracting cholera. On the other hand, the few cases that are observed among residents are almost all drawn from the class whose surroundings and habits are in the highest degree unfavourable to general health. Admitting, then, the extreme severity of the cases that do occur, the rarity of the disease among those who take ordinary precautions for the preservation of health disposes of any claim to an epidemic character as attaching to the cholera encountered in Shanghai.

No year now passes without the prevalence of diseases peculiar to children, but infantile mortality remains low. Whooping-cough, measles and varicella could not be considered epidemic last winter, although many cases of each came under treatment. One death from whooping-cough is reported.

Two cases of abscess of the liver proved fatal. In one a previous abscess had been successfully treated some years ago by incision. Both patients were men of regular and abstemious habits.

The burial return on the following page is drawn up from the municipal registers and the sexton's books.

\* *Treatise on Continued Fevers*, 2nd ed., p. 583.    † *Clinique Médicale*, 3<sup>me</sup> ed., t. 1, p. 270.    ‡ *Lancet*, 1879, ii, 909.

## BURIAL RETURN of FOREIGNERS for the Half-year ended 31st March 1887\*

CAUSE OF DEATH	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	TOTAL
Varicella				I			I
Pernicious fever				I			2
Cholera	5†	2†			I‡		7
Whooping cough						f I‡‡	I
General tuberculosis			I†				I
Phthisis			I§ I†		f I		3
Tabes mesenterica	f I‡						I
Rheumatic gout			I				I
Bright's disease		I			I		3
Alcoholism	I	2†				I	4
Meningitis	f I‡						I
Apoplexy						I†	I
Cerebral hæmorrhage				f I			I
Tonsillitis	f I‡						I
Bronchitis			f I‡				I
Pneumonia		I†					I
Broncho-pneumonia		I†	I‡				2
Disease of aorta		I					I
„ heart		f I		I			2
Dysentery	I†			I			2
Diarrhœa	I† f I I‡						3
Abscess of liver	2						2
Hepatitis		I					I
Cirrhosis of liver				I			I
Tumour of kidney	I						I
„ ovary			f I				I
Eczema				f I‡			I
Infantile marasmus	f I‡		I‡				2
Premature birth	f I‡						I
Concussion of brain		f I		f I‡			I
Accident				I†	I†		2
Drowned		I§	2†	I†			4
TOTAL	18	12	10	9	4	4	57

\* Not including deaths (if any) among the Catholic religious bodies, among Eurasians or Japanese, exclusive also of still births

† Non resident

‡ Infant

|| Native of Macao

§ Native of Manila

If we subtract from the total of 57 deaths 1 case of premature birth, 1 of concussion of the brain, and 6 of accident including 4 deaths by drowning, there remain 49 deaths attributable to disease. There were 11, deaths among children, the oldest being aged 4 years and the youngest 16 days. 2 of the children were of Macao parentage, 1 was the child of a visitor, the remaining 8 were of European birth and children of residents. The foreign adult mortality from disease was therefore 38, including 2 natives of Macao and 1 native of Manila, or 35, if Europeans only are considered. Of this 35, non-residents contributed 16, leaving the mortality from disease among resident European adults at 19 for the half-year (15 males and 4 females).

## CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS

Varicella	1	Dysentery	1
Pernicious fever	1	Diarrhœa	1 (female)
Phthisis	1 (female)	Abscess of liver	2
Rheumatic gout	1	Cirrhosis of liver	1
Bright's disease	3	Tumour of kidney	1
Alcoholism	2	Tumour of ovary	1 (female)
Diseases of heart and aorta	3 (1 female)		

15 males and 4 females, against 14 males and 5 females for the last previous corresponding period

## CAUSES of DEATH from DISEASE among the CHILDREN of RESIDENT EUROPEANS

Typhus mesenterica	1 (female)	Diarrhoea	1
Meningitis	1 ( „ )	Eczema	1 (female)
Tonsillitis	1 ( „ )	Infantile marasmus	2 (1 female)
Broncho pneumonia	1		

3 males and 5 females, the numbers for the winter six months of 1885-86 having been  
1 male and 3 females

## CAUSES of DEATH from DISEASE among NON-RESIDENT EUROPEAN ADULTS

Cholera	7	Pneumonia	1
General tuberculosis	1	Broncho pneumonia	1
Phthisis	1	Dysentery	1
Alcoholism	2	Diarrhoea	1
Apoplexy	1		

16 males, against 15 males during the corresponding period of 1885-86

## CAUSE of DEATH from DISEASE of a CHILD of NON-RESIDENT EUROPEAN

Whooping cough 1 (female)

## CAUSES of DEATH from DISEASE among RESIDENT NON-EUROPEAN ADULT FOREIGNERS

Phthisis	1 (Manila)	Hepatitis	1 (Macao)
Cerebral hæmorrhage	1 (Macao, female)		

2 males and 1 female, against 7 males and 2 females in the last corresponding period

## CAUSES of DEATH from DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Pernicious fever	1 (Macao)	Bronchitis	1 (Macao, female)
1 male and 1 female, both of Macao parentage, as against 1 male and 1 female, also of Macao parentage, during the previous corresponding period			



## DR J F WALES'S REPORT ON THE HEALTH OF CANTON

For the Year ended 31st March 1887

DURING the past year the health of this port has been good, and neither endemic nor epidemic disease has prevailed. There were three deaths—one, an infant, from tetanus, the result, I think, of rough manipulation of the navel string by the amah, who on one occasion caused it to bleed, one from valvular disease of heart, and one from hydrophobia.

In the last-mentioned case the patient had his right thumb lacerated by his dog, on 5th April 15 minutes after, a ligature was applied above the seat of injury, and the wounds were freely incised to encourage bleeding, after which they were cauterised with strong nitric acid. On 17th July he was depressed and feverish. On 18th July he complained of rheumatic pains in right arm, and early in the morning of the following day I visited him. He suffered from want of sleep and from discomfort about the throat. His breathing was hurried, and every now and then I observed a slight catch—respiratory spasm. He was able to take some breakfast, consisting of toast and a soft boiled egg, and at noon he swallowed a piece of ice, but with difficulty. Soon afterwards the respiratory spasm deepened into convulsions of terrible intensity, and he died from exhaustion on the same day shortly after 3 P.M. Death was hastened by the rupture of a blood-vessel, situated somewhere in the alimentary tract, for he vomited large quantities of blood. By way of treatment, diaphoresis was freely induced and maintained by means of pilocarpine and vapour baths, but without any benefit so far as I could observe.

I have had favourable experience of the use of antipyrine in two cases of enteric and one of malarial fever.

In one of the former the temperature rose rapidly to 105° F during the first week. I gave the drug in 1-gramme doses whenever the temperature exceeded 102° 5 F, and always with the result of a fall of from 1° to 2° F in the course of an hour. This was accompanied by a gentle perspiration and a sensation of comfort. By this means, plus the occasional application of the wet pack, the weakening effects due to prolonged high temperature were more or less avoided, and the patient's strength, in consequence, was exceedingly well preserved, notwithstanding the presence of severe diarrhoea which at times was controlled with difficulty.

The good effects of antipyrine are doubtless more or less transitory, but this is no serious drawback when its administration can be repeated as often as necessity arises. It is of small consequence to the practitioner whether this and similar drugs produce their specific effects by acting directly on the pathogenic agent causing the febrile symptoms or on the latter only. What he has to do is to preserve, if possible, the cardiac muscle from those degenerative changes which are due to the high temperature of a continued fever, and which are so likely to cause syncope.

The following abstract from the meteorological tables for last year has been prepared by Mr Harbour Master MAY —

ABSTRACT of CANTON CUSTOMS METEOROLOGICAL TABLES, April 1886 to March 1887

MONTH	WINDS							WEATHER			BAROMETER				THERMOMETER.			
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	No of Days Fog	No of Days Rain	Rainfall in Inches	DAY		NIGHT		DAY		NIGHT	
											Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest
1886							miles				Inches	Inches	Inches	Inches	°	°	°	°
April	7	20	1		2		4.3		11	9½	{ 30 10 30 03	29 80 29 89	{ 30 08 30 02	29 79 29 88	82 77	63 69	78 73	63 69
May	2	29					3.7		8	8½	{ 30 10 29 99	29 81 29 91	{ 30 05 29 98	29 83 29 89	91 84	69 77	85 81	68 74
June	6	19	2	1	1	1	5.4		18	13½	{ 29 99 29 89	29 64 29 76	{ 30 00 29 90	29 69 29 77	88 83	73 79	86 82	75 76
July		25			6		6.8		13	11½	{ 29 97 29 89	29 65 29 76	{ 29 94 29 89	29 60 29 78	92 86	76 81	89 83	76 79
August		21	5		5		5.6		10	6¾	{ 29 96 29 87	29 60 29 74	{ 29 93 29 85	29 61 29 72	93 89	78 83	88 83	78 80
September	20	3	3		4		5.4		3	4½	{ 30 10 29 98	29 76 29 85	{ 30 08 29 98	29 78 29 86	95 88	77 81	90 82	72 77
October	10	15	2		4		5.9				{ 30 26 30 07	29 80 29 98	{ 30 21 30 03	29 80 30 00	92 83	63 78	85 78	59 76
November	28	2					7.2				{ 30 30 30 20	29 90 30 11	{ 30 22 30 15	29 90 30 13	82 76	56 66	76 70	57 67
December	21	2			8		4.0		4	1	{ 30 33 30 23	30 00 30 15	{ 30 30 30 18	30 00 30 17	73 67	56 60	67 62	53 58
1887																		
January	17	5			8	1	7.0		7	5½	{ 30 25 30 11	29 90 30 04	{ 30 20 30 08	29 89 30 06	74 64	43 53	71 59	43 55
February	16	3	1		8		6.0		8	2½	{ 30 38 30 14	29 94 30 07	{ 30 30 30 11	29 95 30 09	76 62	46 57	71 57	42 54
March.	14	13	1		3		6.0		13	5½	{ 30 20 30 09	29 80 30 01	{ 30 17 30 04	29 82 30 02	82 70	58 66	77 66	55 63

REMARKS — 1886 During April the highest reading of the barometer was 30 10 inches, on the 21st and 22nd, and the lowest 29 79 inches, on the 17th. The highest temperature was 82°, on the 10th and 30th, and the lowest 63°, on the 14th and 15th. Rain fell on 11 days, measuring 9½ inches. S E winds prevailed, and the strongest was recorded on the 24th, averaging 8 8 miles an hour during 24 hours — During May the highest reading of the barometer was 30 10 inches, on the 1st, and the lowest 29 81 inches, on the 30th. The highest temperature was 91°, on the 21st, and the lowest 68°, on the 6th. Rain fell on 8 days, measuring 8½ inches. S E winds prevailed, and the strongest was recorded on the 11th, averaging 9 3 miles an hour during 24 hours — During June the highest reading of the barometer was 30 inches, on the 20th, and the lowest 29 64 inches, on the 15th. The highest temperature was 88°, on the 17th, 27th and 30th and the lowest 73°, on the 13th. Rain fell on 18 days, measuring 13½ inches. S E winds prevailed, and the strongest was recorded on the 27th, averaging 13 5 miles an hour during 24 hours — During July the highest reading of the barometer was 29 97 inches, on the 6th, and the lowest 29 60 inches, on the 27th. The highest temperature was 92°, on the 14th, and the lowest 76°, on the 9th and 18th. Rain fell on 13 days, measuring 11½ inches. S E winds prevailed, and the strongest was recorded on the 18th, averaging 12 1 miles an hour during 24 hours — During August the highest reading of the barometer was 29 96 inches, on the 28th and the lowest 29 60 inches, on the 14th. The highest temperature was 93°, on the 14th, and the lowest 78°, on the 10th and 26th. Rain fell on 10 days, measuring 6¾ inches. S E winds prevailed, and the strongest was

recorded on the 16th, averaging 12.3 miles an hour during 24 hours —During September the highest reading of the barometer was 30.10 inches, on the 30th and the lowest 29.76 inches, on the 5th and 18th. The highest temperature was 95°, on the 19th and the lowest 72°, on the 24th. Rain fell on 3 days, measuring 4.1 inches. N E winds prevailed, and the strongest was recorded on the 6th and 23rd, averaging 9.5 miles an hour during 24 hours —During October the highest reading of the barometer was 30.26 inches, on the 31st and the lowest 29.80 inches, on the 10th. The highest temperature was 92°, on the 11th and the lowest 62°, on the 31st. No rain fell. S E winds prevailed, and the strongest was recorded on the 13th, averaging 17 miles an hour during 24 hours —During November the highest reading of the barometer was 30.30 inches, on the 23rd and the lowest 29.90 inches, on the 17th. The highest temperature was 82° on the 4th and the lowest 59° on the 1st. No rain fell during the month. N E winds prevailed, and the strongest was recorded on the 2nd, averaging 14.4 miles an hour during 24 hours —During December the highest reading of the barometer was 30.33 inches, on the 11th, and the lowest 30 inches, on the 22nd. The highest temperature was 73° on the 2nd, and the lowest 56° on the 9th and 23rd. Rain fell on 4 days, measuring 1.7 inches. N E winds prevailed and the strongest was recorded on the 6th, averaging 10.8 miles an hour during 24 hours —

1887 During January the highest reading of the barometer was 30.25 inches, on the 11th and the lowest 29.89 inches, on the 23rd. The highest temperature was 74°, on the 11th, and the lowest 42° on the 26th. Rain fell on 7 days, measuring 5.63 inches. N E winds prevailed, and the strongest was recorded on the 5th, averaging 12.2 miles an hour during 24 hours —During February the highest reading of the barometer was 30.38 inches, on the 15th and the lowest 29.94 inches on the 6th and 7th. The highest temperature was 76° on the 19th and the lowest 42°, on the 10th. Rain fell on 8 days, measuring 2.1 inches. N E winds prevailed, and the strongest was recorded on the 14th, averaging 11.2 miles an hour during 24 hours —During March the highest reading of the barometer was 30.20 inches on the 23rd and the lowest 29.80 inches, on the 29th. The highest temperature was 82°, on the 29th and the lowest 55° on the 19th. Rain fell on 13 days, measuring 5.6 inches. N E and S E winds prevailed, and the strongest was recorded on the 18th, averaging 14 miles an hour during 24 hours.

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## DR J H LOWRY'S REPORT ON THE HEALTH OF HOIHOW (KIUNGCHOW)

For the Half-year ended 31st March 1887

DURING the past six months there have been few cases of serious illness. Of the Customs staff only two members have been off duty on account of sickness, and then only for short periods.

The weather began to get cool from the first week in November, and the remainder of that month and December were exceedingly pleasant. With January came the miserable weather with which residents in these regions are so familiar, drizzling rain and northerly blows. But unpleasant as it is here, it does not compare with the cold, miserable weather I have experienced at the neighbouring port of Pakhoi during the early months of the year. It is quite remarkable the small amount of rain that has actually fallen during the period under review. Throughout the island there is a great cry out for rain, and the rice fields are dry and hard.

During October I was called upon to treat a foreigner, suffering from congestion or inflammation of the liver.

When seen by me on the 4th, he complained of having felt out of sorts, and thought he was in for an attack of ague, from which he had before suffered. Prior to my visit the patient had one distinct shivering fit. The liver I found enlarged and tender, in the nipple line absolute dulness was increased to 5 inches, there was also some enlargement and tenderness of the spleen, the bowels kept constipated, urine very scanty, and for a few days the secretion almost suppressed, subsequent examination found  $\frac{1}{4}$  albumen. The temperature during the whole period of the patient's illness ranged from  $99^{\circ}$  to  $101^{\circ} 6$  F, there always being a morning fall. So slow was the progress of the case, that I feared I should eventually have to deal with an abscess, but with the cool weather in November, improvement set in. The liver and spleen enlargements decreased, and there was less tenderness, temperature became normal, and the urine on the last examination contained no albumen. The treatment consisted of full doses of muriate of ammonia combined with nitro-muriatic acid, saline purgatives, 10 grain doses of quinine at bedtime, and sinapisms applied frequently over both liver and spleen. The diet consisted of as much milk as could be obtained, supplemented with chicken soup and puddings.

A case of delirium tremens occurred in a foreigner, long resident in the East and long addicted to alcoholic abuse. The usual symptoms of such a case were present, but, in addition, he had convulsions, which caused me some anxiety. The man recovered, and has since had another attack, but less severe, no convulsions being present.

*Case of Traumatic Tetanus*—On 4th December a cargo coolie was brought ashore, from one of the steamers in port, with a severe, lacerated wound of the index and middle fingers of his right hand, it having

been caught in the machinery of the steam crane. The wounds were cleaned and dressed with carbolic oil and the hand placed on a splint. The wounds continued to granulate, and the man was doing well until the 16th, when he complained of stiffness of the jaw and inability to open his mouth completely, he also complained of pain up his arm. On the following day the symptoms were more marked, and the risus sardonicus was distinctly present. I put the man on 15-grain doses of chloral hydrate, dressed the wounds very carefully, and sent him home. The patient lived a long way off, so I was unable to see him daily. The medicine was continued and the wounds were dressed daily, and the man made a complete recovery. I saw him last on the 29th January, the wounds were completely healed, and there was no difficulty in opening the mouth. He was extremely weak and emaciated. He has since resumed his work as a coolie.

*Case of Adherent Placenta* — On the evening of 28th December I was asked to see a woman, aged 30, said to have been in labour 12 hours. I found her sitting over a jar, in the defecating position, surrounded by an array of Chinese midwives. In this position I was told she had been more or less all day. Having got her into bed, I made an examination and found the os dilated to size of a half crown. In a couple of hours I returned, found the os dilating and the pains fairly strong, and in due time the child was born without the aid of instruments. After the birth of the child there was a period of repose, but soon some slight pains were felt, so I grasped the uterus and commenced making pressure in the usual way, with the intention of assisting the expulsion of the placenta. After patient kneading and pressure for some time, there being no sign of the placenta being expelled, I made an examination, and traced the cord through the os. Some slight pains returning, I resumed making pressure and continued it for a long time, with no improvement in the state of affairs. Gave ergot, and waited a little, then made firm pressure and continued it without any sign of advance. I now passed my hand into the uterus, and made out that the placenta was adherent. The woman being greatly fatigued, I decided to defer any further operation. The following day Dr McCANDLISS, of Kungchow, kindly saw the patient with me. We placed her under chloroform, and made every effort to extract the placenta, but, beyond some small portions, it could not be removed. So firm was the adhesion that we decided to abandon making any further efforts. During this long operation we gave repeated doses of ergot, in the hope of getting the uterus to help us, but it was of no use. The binder was firmly applied, and we left the house, feeling sure that it was an exceedingly grave case. The further progress was, as anticipated, very serious, but in spite of all complications the woman recovered. Symptoms of septic poisoning set in soon, with shivering fits, high temperature, quick pulse. Secretion of milk ceased, and it is needless to say that the discharge was profuse and fetid, portions of placenta being from time to time expelled. Abdominal pain was present, but not constant. Pneumonia set in and ran a regular course, and was followed by an obstinate diarrhoea. Bed-sores threatened, but did not form. The treatment from beginning to end was to keep up the strength, every form of nourishment was poured into her, and the best port wine was given liberally. Antiseptic injections of CONDY'S fluid and, later, tincture of iodine were administered twice daily. The buttocks and external parts were washed with carbolic lotion, and embedded in a mass of oakum, changed as required. Quinine was given throughout, and the pneumonia and diarrhoea received the usual treatment of such cases. By 20th February the patient was sitting up. There was a history of abortion some years ago, and no doubt some disease of the uterine mucous membrane had been left behind and was the cause of the adhesion.

The natives of the island are beginning to appreciate the benefit of foreign medical science, as, latterly, Dr McCANDLISS has had a large number attending the American Mission Hospital at Kungchow.

ABSTRACT of METEOROLOGICAL OBSERVATIONS, taken at the Custom House by M<sup>r</sup> Harbour Master MULLER, for the Six Months ended 31st March 1887 Latitude, 20° 3' 13" N, Longitude, 110° 19' 3" E

MONTH	WINDS							BAROMETER		THERMO METER		No of Days Fog	No of Days Rain	Rainfall in Inches
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	Highest	Lowest	Highest.	Lowest			
1886							Miles	Inches	Inches	°	°	D h	D h	
October	23	3			5		3	30 22	29 83	85	70		1 15	5 $\frac{1}{16}$
November	29				1		4	30 30	30 00	78	68	1 0	0 6	2
December	30				1		4	30 37	30 05	72	52	1 6	0 12	0 $\frac{5}{16}$
1887														
January	26			1	4		3	30 25	29 93	75	52	9 0	4 0	3 $\frac{1}{16}$
February	28						3	30 39	29 98	73	56	7 0	5 0	2 $\frac{1}{16}$
March	22	3			6		3	30 25	29 88	85	60	6 0	2 0	1 $\frac{3}{16}$

## DR H N ALLEN'S REPORT ON THE HEALTH OF SEOUL

For the Year 1886

DURING the past year the European community at Seoul has been steadily increasing, so that there are now upwards of 45 adults and 11 children. There have been 4 births and 1 death within the last 12 months.

The climatological conditions have been excellent. We missed the severe rains of the summer, yet the hottest days were far from unbearable, and some bed-covering could be used every night. Cholera raged during the hottest weather, but foreigners were not attacked. The precautions observed consisted in keeping the compounds clean, using only boiled and filtered water for drinking, cooking and the toilet, and avoiding purchasing food from the Korean market.

During the winter season small-pox was very common and unusually severe. Several Chinese and Japanese residents were attacked, some of them fatally. The tendency of the disease seemed to be to become confluent, and the natives themselves recognised that it was exceptionally malignant.

One foreigner was attacked soon after his arrival. He was above 40 years of age, and looked much older. He had been vaccinated successfully in early life, and refused to be re-vaccinated in Japan when passing through. Still feeling secure, he neglected proper precautionary measures on his arrival at this place. He hired a house in which his bedroom was only separated from a room occupied by Koreans by a paper partition, and in which lay a child suffering from small-pox. He took the disease, and it ran a characteristic course, with the exception of a throat complication which threatened for a time to become true diphtheria. As it was it made deglutition so difficult that nutrient enemata had at last to be resorted to. Towards the end the eruption became confluent and strength failed. He died on the 12th day of the eruption.

One case of pernicious fever was seen in June.

The patient, a Japanese, had been comparatively well till within a few hours of the attack. He had caught cold the day before, and the attack in question came on with a severe chill. He had also suffered from diarrhoea, which made the diagnosis more difficult. When seen, the patient was cyanosed, pinched and cold, like a person in the collapse of cholera. He had been vomiting, and was very anxious for water, so that had cholera been prevalent at the time, the case might have been mistaken for that disease. It did not then exist here, however, and no history of exposure could be obtained. Everything seeming to point to pernicious fever, patient was given 10 grains of quinine, at once, and this was repeated with the addition of calomel. He died within two hours.

Another very interesting disease that is well-known in Korea is relapsing fever, called by the Koreans 染病 or 열병, pronounced *yem pyeng*. It is one of the most dreaded diseases of the country. Small-pox is seen everywhere, and is passed unnoticed, because those who have survived their first attacks are not liable to receive it again. On the contrary,

*yeon pyeng* having once attacked a person renders him liable to repeated future seizures. The disease is decidedly contagious. I tried to persuade the Koreans that it was not, but a little experience with the malady proved conclusively to me that the people were right.

The poor and those who are ill-fed and much exposed to the weather are the most likely to suffer, though all classes are affected by the disease. Like rheumatism, it is much influenced by damp weather, and is most severe during the spring and rainy seasons. The mortality is greatest among the poor also, for they cannot have the care that is necessary to the cure of the affection. As soon as the disease is recognised in the person of a slave or other person who has not a house of his own, the sufferer is turned out of doors. Indeed, during the past season whole communities of these outcasts could be seen lining the wall, both inside and outside the city, sheltering themselves but poorly by little straw canopies resembling Indian wigwams.

It was difficult to study the disease among these folk, as they were so destitute that the symptoms were often masked by those of neglect. A few cases were seen and treated at the hospital, one of which will be noted. However, the best case for study was that of a foreigner, one of the Catholic fathers, who, in his ministrations at the bedside of relapsing fever patients, contracted the disease himself. His case also shows the great advantages of care.

1st June — Had been feeling somewhat tired and indisposed to exertion for some days previous. Had a chill in the morning, followed by fever, which became worse daily in spite of quinine and other household remedies. I was called on the 5th June. Found patient with pulse 116, temperature,  $102^{\circ}4$ , skin moist at the time, severe pains in legs, and considerable epigastric tenderness, mind clouded, yet answers to questions were quite intelligible. He suffered from severe pain in the head and obstinate insomnia and restlessness. He was given 10 grains of quinine in hydriobromic acid, with 20 grains of chloral to induce sleep. The following night was passed more comfortably, and the next day, being about the time for the crisis, providing it was relapsing fever as it seemed evident it was, a mixture was ordered, containing nitric ether and pilocarpine.

6th June — Before taking the mixture, pulse was 108, temperature,  $102^{\circ}2$ . He got 1 grain of pilocarpine in 4 hourly doses, with the effect of causing a profuse perspiration.

7th June — He had no fever, and considered himself well enough to dispense with further medical services. He was cautioned that in 7 or 14 days he would doubtless have a return of the fever. He therefore observed great care, and took a tonic of bark and muriatic acid. The 14th day (7th from termination of last attack) was passed safely, but the fever returned on the 21st day. The return was not severe, and yielded to a good sweat, leaving him with none of the sequelæ so much dreaded by the natives.

With Koreans suffering from the disease, quinine seems of no avail. The temperature falls slightly for the time, but soon rises again. Pilocarpine is the sheet-anchor, and it must be given at about the crisis. A wet pack would doubtless be a good thing to administer in these cases.

If profuse perspiration fails to come on at the time of the crisis, the fever and delirium continue, and the patient generally dies. If he does not die, he continues in a low state, having a crisis, less severe, on the 14th day or thereabouts, and another at about the 21st day. It is rather common for them to die of exhaustion at about the time for this third crisis. If they do have strength to survive, they are apt to be left with an unsound mind, impaired hearing or vision, with also constantly recurring rheumatic pains whenever the weather is damp.



A case was brought to the hospital of a boy, 14 years of age, who had missed the sweat, and was in a low, delirious condition. He passed his stools involuntarily, refused to eat anything, and lay in a state of exhaustion, with a temperature ranging from  $102^{\circ} 5$  to  $103^{\circ} 8$ . Anticipating the 21st day crisis, I gave him  $\frac{1}{2}$ -grain pilocarpine, which caused him to sweat profusely, but from exhaustion he became so low that he was reported as dead, and arrangements were made for sending him away. He was ordered to be let alone, and I administered an enema of an ounce each of cod-liver oil and rum. That night he got up, washed himself, and asked for a clean room and clothes. He made a complete recovery, without loss of mental power, sight or hearing.

We had another case that only remained a short time, being removed by friends. Temperature at the time of entry was  $107^{\circ}$ . He was delirious, and quinine deafened him without allaying the symptoms perceptibly.

No eruption is observed with the disease, and the pains are mostly confined to the legs and back. The onset is much like that of small-pox, and the course and general characteristics very much resemble remittent fever. The contagiousness of the trouble, its epidemic and fatal nature, together with the uselessness of quinine, serve to confirm the diagnosis. A friend, to whom I sent some of the blood from a patient who had passed the first crisis, for microscopic examination, writes me that by staining the dry film he found the characteristic spirillæ, although he searched for them in vain before staining. He describes them as slender, corkscrew-shaped filaments, occurring singly away from the blood corpuscles.

On 15th July 1886 cholera reached Seoul. It came overland from the southern ports, and we had ample time to prepare for it, as we heard of its approach. It found the city generally in a filthy condition, and the people ripe for the harvest. They would not take the proper precautionary measures, and even the servants of foreigners would persist in eating all sorts of unripe trash, notwithstanding our remonstrances. They acted like fatalists, and let their friends die almost uncared for once they were taken. Booths were erected, at considerable expense, about the city, and the cholera god was prayed to. Battalions of soldiers fired off charge after charge to scare him out of the Palace grounds. At the hospital officers were instructed as to the manner of giving the cholera mixture, composed of sulphuric acid, opium, camphor and capsicum. Someone was at hand day and night, giving out the medicine. The foreigners all entered into the work, and dispensed medicine from their houses. The Chinese Representative sent out hundreds of opium pills on his own account. By about September 1st the disease had disappeared. Its disappearance was doubtless due to the fact that all the available material was exhausted. It was very quick work, for the conditions were so favourable that the disease spread like wildfire.

Through the kindness of Prince MIN YONG-UK, officers were stationed at the two gates through which the dead are carried, with orders to keep a careful account, and send in daily returns concerning the number of dead borne out. We found in this way that from 15th July to 25th there were 3,060 dead bodies carried out for burial, 26th July, 460, 27th, 421, 28th, 371, 29th, 297, 30th, 345. It then began to decline, so that on 16th August the rate was but 66, and by 1st September it had fallen to 20. The whole number for the month and a half was 7,092.

All who die in the city must be carried outside for burial, and they have to pass through one of two gates, so that it was easy to get the total of deaths. This number, however, would necessarily include the deaths from all other causes. Therefore a rough calculation was made

as follows. The city has, as nearly as may be ascertained, 150,000 inhabitants within the walls. There are as many outside, but there is no way of obtaining the number of deaths among them. Giving the city a very high mortality for the summer months, say, 50 per 1,000 inhabitants, we may count 20 deaths per day as normal. Deducting this number for the 47 days of the cholera reign (940) from the aggregate number, we have 6,152 as the probable number of deaths from cholera alone. The number is probably greater than this estimate, for during September the mortality ran down to 7 or 8 per diem, and 50 per 1,000 is a rather heavy rate to adopt. In any case, the number of deaths from cholera inside the city during the epidemic of 1886 did not exceed 7,092, and was not less than 6,152.

During the height of the epidemic it was unpleasant passing through the streets. In order to keep up with the heavy death rate, bodies were allowed to be borne out during the day as well as at night (night is usually the time for funerals), and so great was the demand for carriers that one litter was often made to carry several bodies, with simply a mat for covering. The hill-sides were badly marred with the numbers of new made graves, and in some places animals had removed the thin layer of earth which covered the coffinless bodies.

The treatment followed was the afore-mentioned mixture, in cases which could not be personally attended, otherwise hypodermic injections of morphia and chloral for the cramps and of brandy for the collapse were administered. Treatment was not eminently successful. The disease seemed very malignant, and usually terminated fatally within a few hours, a few cases hanging on till the next day. I was several times called to see a patient at the commencement of the attack, and found him dead when I reached the place, though not over two or three hours had elapsed since the recognised onset of the trouble.

The progress of the cholera wave was very peculiar. It started from the region of the Port of Fusan, probably from the remains of the Japanese cases that occurred there last season. It then advanced on the capital, taking all the country in a wide belt across the peninsula. After finishing up at the capital, we heard of its ravages to the north. The whole country is now free from the disease, and the Siberian ports are suffering from it.

Several cases of enteritis have occurred among foreigners, and many cases are seen among natives, due probably to the anti-cholera doses too freely indulged in.

Perityphlitis occurred in the person of a foreigner who had been having sufficient daily stool to quiet his mind, but not enough to relieve his bowels, which became loaded, and, upon aggravation, induced the attack in question. He was given little but opium and calomel. The opium was pushed to the full extent. A large poultice was kept constantly warm upon the whole abdomen, and he made a good recovery, with, however, occasional pain over the seat of the inflammation when a certain position is assumed, indicating the presence of some adhesions.

In the Government hospital during the year ended 10th April 1886, there were treated 10,460 patients, which were classified and discussed in the first annual report of the institution. The numbers for this year continue about the same, and are expected to increase, as a fine new building has been given by special act of His Majesty. It contains ample room, and a separate adjoining compound is nicely fitted up for a female department, under the care of Miss ELLERS, M.D. A well-equipped school is also one of the features of the new institution.



CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1887.

34<sup>th</sup> Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,  
AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE.  
LONDON F S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1890.

[Price \$1 ]



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

*a*—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death.

*b*—Diseases prevalent at

*c*—General type of disease, peculiarities and complications encountered, special treatment demanded.

*d*—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

*e*—Peculiar diseases, especially leprosy

*f*—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

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I am, etc,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsur,*  
*Hankow, Takow,*  
*Kuankiang, Amoy,*  
*Chunhsiang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, *21st December 1889*

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Foochow, pp 3-6,

Report on the Health of Tamsui and Kelung, pp 7-11,

Report on the Health of Amoy, pp 12-14, each of these referring to the year ended  
30th September 1887

Report on the Health of Chefoo, pp 1, 2,

Report on the Health of Hoihow (Kiungchow), pp 15-16,

Report on the Health of Shanghai, pp 17-23,

Report on the Health of Pakhoi, p 31, each of these referring to the half-year ended  
30th September 1887

Clinical Studies of disease as observed in China, pp 24-30

Psilosis or Sprue, or Diarrhoea, pp 32-36

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,

*PEKING*

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Chefoo

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Foochow

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Tamsui and Kelung

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Amoy

J H LOWRY, L R C P Ed, L R C S Ed

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Hankow

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## DR W A HENDERSON'S REPORT ON THE HEALTH OF CHEFOO

For the Half-year ended 30th September 1887

THE health of the foreign community during the late hot season was good, deviating but little from its usual excellent standard, and compelling me to seek material for this Report among the natives. In my last Report the establishment of a native hospital in the town was announced, and an account of the disorders met with was given. Now I would merely supplement what was then written.

In all, 5,725 persons applied for relief. In May and June continued fever was epidemic. Of persons stricken, 189 presented themselves, of whom 126 were in May and 63 in June. Six only exhibited the characteristic mottling of typhus. The probable cause of continued fever, other than typical typhus, at this season is that the poor, during the increase of temperature in spring and summer, do not completely discard their winter clothing, saturated as it is with secretions, other insanitary conditions doubtless co-operating. Cholera broke out towards the end of September, carrying off several hundreds of people, which numbers I must greatly exaggerate. In connexion with this outbreak it is to be noted that the season was very dry. For the six months beginning with May and ending, as I write this Report, with October, the rainfall was but 10.75 inches, rain fell only during 172 hours, and the mean range between wet and dry bulbs was  $7^{\circ} 5$ . The well water, upon which the people entirely depend, became very low, and quite inadequate for sanitary purposes, while there was only half the average autumn crop. Further, it is to be remembered that the population is excessive, and that there is much poverty. It is said that formerly 5 *mow* of land was necessary for the support of an adult, but that since the introduction of the sweet potato, 40 years ago, 1 *mow* suffices.

Among the surgical cases the two following are the most interesting —

In June a soldier came to the hospital in a dying state from paralysis of the abductor muscles of the larynx. As he was in a state of partial collapse from the rapidly developing asphyxia, tracheotomy was at once performed, when free respiration was established. He was extremely emaciated, with a history of specific disease and recent continued fever. After the operation he soon began to put on flesh. Treatment has failed to relieve the paralysis, still he enjoys life, and is employed as a gatekeeper in a neighbouring barrack. When expressing gratitude he closes the tracheal opening with his finger, and so he can grant his thanks, but should the finger be retained for any length of time, asphyxia sets in.

Another case illustrates the aptitude of the Chinese for surgery. The patient, a man of 60, had both nostrils filled with polypi, and a very large one growing from the posterior nares, hanging downwards into the pharynx and pressing forward the soft palate and uvula. A snare was extemporised, the noose of which I passed round the polypus in the left nostril, and left the case in the hands of my assistant Li Se eu, telling him to keep the noose tight till the polypus came away, and that I intended to similarly strangulate the others. Upon my return I found that he had removed all the polypi. He had passed the snare

along a nostril, bringing the noose down into the pharynx, slipped it over the tumour till it surrounded the root growing from the posterior nares, which he accordingly strangulated. Though this is the only way in which the noose could have been applied, yet for a Chinaman, without any literature on the subject or knowledge of the operation further than the anatomy of the parts indicate, to spontaneously attempt such a procedure is certainly worth noting. The whole mass which he thus removed weighs 3 oz.

The following table of temperature is from M<sup>r</sup> E V BRENNAN'S meteorological record for 1887 —

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Mean maximum	32	40	50	65	73	84	86	88	77	73	60	46
Mean minimum	23	27	33	46	55	66	70	73	63	54	39	27

## DR T RENNIE'S REPORT ON THE HEALTH OF FOOCHOW

For the Year ended 30th September 1887

DURING the year among foreign residents few cases of serious illness occurred, although the unhealthy conditions existing at the close of the past year were for some time continued into the present year

In the course of the 12 months there were seven births and one death

The cause of death was acute tuberculo-pneumonic phthisis. Deceased, aged 29 years, had, previous to coming here, resided about eight months in Singapore. During the latter period of his residence in the South, he had felt generally ill and had suffered much from dysenteric diarrhoea. The voyage up the coast had, he thought, brought on a fresh cold. On arrival in Foochow, on the 25th November 1886, he was very ill, terribly emaciated, with clubbing of fingers, and complained of a troublesome cough. Examination of the chest showed that he not only suffered from bronchial catarrh of recent origin, but that for some time more serious lung mischief must have existed. He also suffered from diarrhoea, but no organic disorder of liver or spleen could be detected. When he went to Singapore he weighed 156 lb, and on arrival here, although 6 feet in height, he weighed only 125 lb. There was considerable pyrexia, and his case seemed anything but hopeful. The sudden change of climate at such an advanced stage of the disease seemed to give it fresh vigour. In spite of every comfort and the administration of suitable food and remedies, there was no attempt at improvement. Soon, large cavities formed in both lungs, and night sweats, diarrhoea, hectic fever, with increasing loss of flesh and strength, caused death by exhaustion on 29th January 1887.

The diseases prevalent among foreign residents were as follows —In October and November intermittent fever, remittent fever, congested liver, dysentery, and carbuncular boils were unusually abundant, many children suffered from impetigo contagiosa, trifling wounds refused to heal, and, generally, people felt out of sorts. During December, January and February six cases of small-pox after vaccination, remarkable for the severity of their general symptoms and abundant eruption, occurred. In January, February, March and April catarrhs, sore throat, muscular rheumatism, urticaria, neuralgia and sciatica were frequently noticed. In May and June ague and diarrhoea were the prevalent troubles. From this date up to the end of the 12 months, excepting boils, the ordinary climatic diseases were rare. In August two residents, suffering from functional disorder of the nervous system, caused by excessive mental and bodily fatigue and the hot summer, were sent home. One case of miscarriage and six cases of profuse menorrhagia seemed to me to be entirely due to the excessive and prolonged heat of the past summer. In July and August I met with two cases of acute pneumonia, a disease which at this season is rarely encountered in Europeans.

Both patients were healthy males, under 20 years of age. In both only the lower lobe of the right lung was affected. The exciting cause was, doubtless, exposure of the perspiring body to a breeze at night. As a predisposing cause, excess of food and wine at table and drinks between meals may have had considerable influence in rendering internal organs more liable to inflammatory conditions. Both cases terminated in complete recovery. In one of them the antipyretic properties of antifebrine were well illustrated. On the second evening of illness a temperature of  $104^{\circ}5$  was accompanied by much prostration and head symptoms. A 10 grain dose of antifebrine dissolved in a wine glass of weak brandy and water was given. In 20 minutes the action of the remedy commenced, and in an hour the temperature fell to  $101^{\circ}8$ . Sleep for seven hours followed, when a temperature of  $102^{\circ}$  was recorded. During the first 24 hours of administration of antifebrine, 30 grains in 3 doses were required to keep the temperature under  $103^{\circ}$ , but on the four following days 20 grains daily in 5-grain doses sufficed to keep the temperature under  $102^{\circ}$ . Three hours after the third dose of 10 grains had been given, there was some blueness of the lips and nails, but otherwise the remedy acted in a most satisfactory manner. Thirst, headache, depression and other feverish symptoms for a time disappeared. The reduction of temperature was accompanied by profuse perspiration, which soaked sleeping-clothes, sheets and mattress.

In January an elderly China resident had a severe attack of renal colic. At once measures to relieve pain were adopted, and the milk and lithia-water treatment commenced.

After diening for three days, six renal calculi, about the size of peas, and composed of uric acid, were passed. Out of a residence of 30 years in different parts in China, this patient had on two occasions spent seven years in Foochow. While here he had frequently suffered from renal colic (although no calculi had been observed to pass till his present illness) and rheumatism, whereas in other parts he had never suffered from either of these diseases.

In May an adult male resident had a slight attack of measles.

During the year there was no typhoid fever.

In the course of the past six months a sanatorium was built on the most northerly of the mountain ranges which surround the valley in the centre of which the foreign houses are built. It stands on the side of a hill, at an elevation of about 2,400 feet above the sea level. While the hillside affords to the house ample protection from the full force of a north-east wind, there is no barrier to the free circulation of pure mountain air from all other directions. An adjacent spring gives an abundant supply of clean, cold water. From the house and from the numerous walks among the neighbouring mountain tops, views varied in magnificence and extent can be had. Until the middle of August the building was not ready for occupation, but the benefit to health derived by ladies and children who spent the remaining six weeks of the hot season there was most remarkable. From readings of standard maximum and minimum Fahrenheit thermometers placed in the dining-room of the sanatorium, the highest temperature recorded from 21st August till 30th September was  $82^{\circ}$ , on 21st September, and the lowest,  $65^{\circ}5$ , on 15th September. The average of the maxima for this period was  $75^{\circ}$ , and the average of the minima  $68^{\circ}$ . The temperature ranged from  $10^{\circ}$  to  $15^{\circ}$  below that in houses in the Settlement.

In spite of cooling breezes on most days, the past summer was considered by old residents the hottest experienced for many years. In July and August there were few days on which the thermometer did not mark higher than  $90^{\circ}$ .

For the following extracts from the Pagoda Anchorage meteorological tables I am indebted to the Harbour Master —

MONTH	WIND					BAROMETER				THERMOMETER					WEATHER				
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Max	Min	Mean	Averages		No of Days Rain	Rainfall	No of Days Fog		
													Wet Bulb	Dry Bulb					
1886						Inches	Inches	Inches	Inches	°	°	°	°	°	D	h	Inches	D	h
October	20	4	1	4	2	30.47	29.91	30.37	29.90	91.0	60.0	75.50	68.00	75.00	3	0	0.26	1	0
November	21	3	1	4	1	30.50	29.98	30.45	30.00	78.0	63.0	70.50	58.00	64.00	1	0	0.07	2	0
December	17	3		10	1	30.54	30.13	30.48	30.15	71.0	38.0	54.50	49.75	54.75	2	12	1.43		
1887																			
January	21	3		5	2	30.58	30.05	30.46	30.08	72.0	43.0	57.50	51.75	55.50	8	0	6.50	4	0
February	18	4		4	2	30.62	30.09	30.57	30.14	74.5	38.5	56.50	56.00	51.00	7	0	1.34	2	0
March	18	7	1	4	1	30.44	30.00	30.58	29.96	76.5	41.5	59.00	54.00	57.50	8	14	3.94	6	0
April	13	9	2	5	1	30.45	29.84	30.40	29.85	88.0	43.0	65.50	59.50	67.25	7	8	3.29	3	0
May	16	6	2	5	2	30.20	29.77	30.26	29.88	88.0	53.0	70.50	67.00	71.50	8	6	2.96	2	0
June	5	4	15	3	3	30.15	29.67	30.07	29.71	96.0	66.0	81.00	75.25	80.25	4	11	2.07		
July	10	7	8	4	2	30.13	29.60	30.10	29.60	100.0	68.5	84.25	78.25	86.00	9	8	9.72		
August	4	9	9	6	3	30.28	29.67	30.11	29.69	101.0	72.0	86.50	77.75	89.75	2	0	0.20		
September	21	3	3	2	1	30.16	29.58	30.15	29.64	98.0	72.5	85.25	75.25	83.00	12	12	5.56		

Among natives, in October and November remittent fever was said to have been more prevalent and more fatal than it had been for 20 years. In winter and spring small-pox, chicken-pox, measles and mumps were unusually common, five cases of scarlet fever, with one death, were treated at the American Methodist girls' school. I heard of no other cases of this disease. In the course of the summer several cases of beri-beri among Cantonese residents came under observation, but the hot season was a remarkably healthy one, and natives were free from other diseases of an epidemic nature.

In the place of the native hospital on Changchow Island, which was accidentally burned down in May 1886, the combined generosity of native officials, foreign residents, and native merchants enabled us to procure a more open site, and erect thereon a more substantial and commodious building. Through the aid of members of the Chamber of Commerce a woman's ward was added, and dedicated to the memory of the late Sir HARRY PARKES. The new hospital, though a little more inconveniently placed for city patients, removes, by its isolated position, the constant dread of a fire arising in native property and attacking a crowded hospital with a narrow entrance, which, while the old institution was in use, existed. In April the department for out-door patients was completed, and in June we were ready to receive in-patients. From the increasing numbers of both classes of patients, the new hospital seems to be highly appreciated.

In October, about Foochow and neighbouring districts an epizootic, due to a species of ascaris infesting the intestinal canal of common fowls, proved very fatal among their young.

Chickens so affected suffered from diarrhoea, became emaciated, looked dispirited, and in a few days died. At the outset of the epizootic, in one of the districts whence the fowl supply for the Foochow market is chiefly derived, three natives, after partaking of a meal in which boiled fowls formed a prominent ingredient, died. It was known that the fowls eaten had been infested with entozoa, and the cause of death in the three Chinamen was attributed to a poisonous condition of the flesh of the fowls produced by their worm guests. A philanthropist caused placards recording the event and supposed cause to be circulated throughout the district. The dread inspired by this prevented for some weeks the local consumption of domestic fowls. Foochow poulterers took advantage of the scare to cheaply replenish their stores, but, unfortunately for the dealers, the placards soon followed, and fowls were rendered for some weeks unsaleable. Nothing could be learned of the symptoms preceding the death of the natives, but unless the fowls contained entozoa of the trichina type, some other article of the meal must, I think, have caused death. Here, round worms are very frequently and tape worms are sometimes found in the intestinal canal of fowls. Occasionally chickens suffering from diarrhoea and emaciation die in numbers, and an inflamed intestinal tract, ulcerated here and there, and containing numbers of round worms, is the only apparent cause of death. Both foreign residents and natives must daily consume fowls that have been the hosts of such parasites, but hitherto no harm seems to have resulted.

In September, milderpest was prevalent in native and foreign dunnies

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## DR ALEXANDER RENNIE'S REPORT ON THE HEALTH OF TAMSUI AND KELUNG

For the Year ended 30th September 1887.

DURING the period under review the health of the foreign community has been satisfactory. The climatic conditions have been excellent, with the exception of a higher than average thermometric range during the summer months. Still, the comparatively cool nights rendered the season on the whole far less trying than it proved at the northern ports of China.

Cases of malarial fever have been much fewer and less severe than during the corresponding period of last year. This immunity may be attributed in part to three causes: (a) Less amount of rainfall. The rainfall during the summer months, the period which more immediately concerns us, was, during the six months ended 30th September 1886, 43.54 inches, and during the six months ended 30th September 1887, 33.86 inches, *i.e.*, 20 per cent less during the summer of this year. Rainfall undoubtedly influences the prevalence of the fever, although experience shows that its effect is manifested, not during the period of rainfall, but in the dry and hot weather succeeding. A soil flooded in the rainy season gives off a certain degree of moisture in the dry season. According to WENZEL'S observations, the temperature curve precedes the fever curve by 20 to 25 days, so that three weeks of increased temperature appear to be the period necessary for the production of the malarial poison and the outbreak of fever. (b) The prevailing winds during June, July and the beginning of August were westerly. These sea breezes are attended with much less fever than the usual land breezes sweeping over a large extent of malarious country. (c) The cessation of earthwork operations in the neighbourhood of the Settlement. During the French invasion and subsequently, great activity was manifested by the Chinese military authorities in throwing up lines of earthworks for coast defence. As I mentioned in a previous Report, the freshly upturned soil was a fertile source of the disease, both to the soldiers engaged in the work and to residents in the vicinity. During the present year the military force has been turned to account in railway construction in another part of the island, and the building of forts in this neighbourhood has been temporarily abandoned.

Here, as in all malarious countries, cases of relapse after years of immunity are occasionally observed, and the rarer cases, wherein the first attack of fever occurs after return to a non-malarious country, come to our knowledge. It seems at first sight rather difficult to fit a germ theory of causation to these instances. The explanation may perhaps lie in the supposition that the heat regulating nervous centre once disordered readily loses its controlling influence when the system is strained by undue exposure to heat or cold, or that the micro-organism possesses to a remarkable extent the property of lying dormant for years.



There are two births to record during the year, and one death. One of the children died when four weeks old.

The mother when confined was suffering from an attack of intermittent fever, and probably from this cause labour came on a week or two before the expected time. During the confinement the temperature fell, but rose again the following morning. On the second day after delivery the child was observed to be feverish, and remained so for two days, the temperature reaching  $103^{\circ}2$ . It then became normal, but rose again to  $101^{\circ}5$  on the third day following, and again intermitted for one day. After the first week the temperature remained normal, but the child was weak and assimilated little nourishment, and gradually sank from inanition. During the first week there was no appearance of thrush or any other cause to account for the rise of temperature.

Indian authorities state that the children of parents who have suffered much from malarial fever are often born with a peculiar tint of skin and splenic enlargement, characteristic of malaria, *i.e.*, a malarial diathesis, which in after life gives a type of periodicity to any other febrile illness. Such was not the case in this instance. Both parents were healthy, and had suffered very little from malarial fever. The child seemed to have acquired it from the circulation of febrile blood immediately prior to delivery.

The community has, as regards non-climatic diseases, been extremely healthy, there are no cases worthy of record. The number of residents is much the same as last year, possibly during the construction of railways and other improvements there may be a slight temporary increase.

Among the natives the mortality from all causes has been less than during the previous year. Cases of fever were not numerous until after the end of July. During September a few cases of cholera were reported in Bangkok, a large town situated on the river about 12 miles inland. I had not an opportunity of seeing any of these cases, but from the symptoms described, rapid fatality, two or more deaths in one house, there are good grounds for believing that the disease was a form of cholera.

In Kelung the mortality has been excessive. In the spring of this year the construction of a railway from Kelung to Twatutia was commenced. Within  $1\frac{1}{2}$  mile of Kelung the line runs through a hill, and it is in the excavations for this tunnel and cuttings on the hill-side that men up to the present have been chiefly engaged. The number of soldiers actually employed has varied, about 2,400 were drafted for this work, but the full number has not been employed at one time. For the three months ended with August, the mortality from all causes was set down as 493, for September, returns are not forthcoming. For the six months ended 30th September a mortality of 800 is certainly not over the mark. Among the dead are one general and several officers.

The actual mortality, however, by no means represents the loss. Many who recovered are so weak as to be useless for further operations. The prevailing disease was malarial fever, and the duration of the attacks varied from 3 to 20 days. A few cases of insolation also occurred. With the more marked variations of temperature that occur in August and September, diarrhoea became prevalent, and cases have increased in frequency and severity up to the present both among the soldiers and the natives of the town. Many cases were due to errors of diet, but doubtless many more were due to exposure. In the warm nights these men drop off to

sleep with no more protection to their abdomen than that afforded by the clothing they have worn during the day. In the low temperature just before dawn that is experienced towards the end of summer, those chills are received which form the starting-point of severe diarrhoea.

When we consider the insanitary condition of the camp and surroundings, the only wonder is that the mortality was not greater. The men were accommodated in tents and huts erected in the vicinity of the cuttings, and had to contend with a blazing sun by day, and a bed on damp ground with exposure to freshly upturned soil by night.

No attention was given to the disposal of sewage or refuse, although this point was strongly urged by the engineer in charge. In the absence of latrines the night-soil was deposited everywhere about the place to pollute the atmosphere in dry weather or to be washed by the rains into the pools and small streams whence cooking and drinking water was obtained. On reference to former *Medical Reports* I find that in 1877 in Kelung soldiers suffered in a similar manner. The mortality, however, was not so great. Of 1,500 men landed in February of that year, about 300 had died before the end of September.

It is striking to note the severity with which soldiers suffer from climatic conditions in this island. They are mostly drawn from the northern provinces of the empire. Although in point of physique they are far superior to the natives of the island, they are by no means so well fitted to withstand the sickness attendant on the work they are engaged in. The worst cases of malarial fever and malarial cachexia I have seen have been in northern men employed in railway work, or from the Kelung coal-mines. It is not the degree of fever that is noteworthy so much as the rapid exhaustion, and, in cases that recover, the marked anaemia and prolonged debility following in its train. It is possible that in the case of the inhabitants of the island a gradual process of acclimatisation is going on whereby the type of the disease is modified in each successive generation, so that although physically inferior they suffer less from the endemic disease. It is merely extending to the race what we observe in the individual. A man who on first arrival has had one or more attacks of intermittent fever may in course of time cease to suffer in this manner, although occasionally afflicted with other ailments of a less marked malarial origin, such as neuralgia, brow-ache, rheumatism, etc. These latter complaints are extremely common among the natives of the island. A sanatorium on Palm Island would be invaluable at the present time, although it should comprise no more than a place of shelter. Lying at the entrance of Kelung harbour, within immediate reach of the mainland, and exposed to the cool Pacific breezes, it would form an invaluable resort for invalids conveyed thither in the hot months of summer.

During June and July, when so many men were on the sick list as almost to bring the work to a standstill, it would probably have been a saving of men and money to have suspended operations until able to work under more favourable conditions.

In the Mackay Hospital over 3,400 new cases were treated during last year, comprising the usual diseases met with in Chinese practice. In the after-treatment of eye operations, such as iridectomy and cataract, I have observed great benefit from the use of salicylated isinglass plaster as recommended by Dr CHISHOLM\*. In Chinese practice patients cannot always be kept

\* *Lancet*, 1886, ii, 296

in darkened rooms, or so carefully watched as in hospitals at home, and consequently will sometimes satisfy their natural curiosity by removing the bandage. Besides the risk of iritis from such a procedure, there is a chance of septic inoculation from wiping with a dirty napkin. In cases of purulent and gonorrhoeal ophthalmia where only one eye is affected, the plaster affords protection to the sound eye. It is light and cool, and at the same time keeps the eyelids firmly closed.

Tumours, chiefly fibrous and fatty, have been numerous. I append illustrations of a case of myeloid sarcoma of the nares —



The bones and cartilages of the nasal cavity were completely disorganised, fragments of the superior maxillæ and frontal bone were removed in the *clivus*. Posteriorly the tumour was more solid, there, owing to the difficulty of breathing, I could not accomplish complete removal. I could with difficulty secure sufficient sound skin to form a covering, but the progress of repair was satisfactory. The patient was a Hakka, 46 years of age. He was rather wasted, and suffered from anæmia, but when he returned home, at the end of three weeks, had improved in these respects.

Of leprosy, 32 cases came under treatment, chiefly of the tubercular form. In early cases I have observed improvement follow the administration of chaulmoogia oil internally, and gujun oil, emulsified with lime-water, externally. The improvement is so gradual, however, that many lack the requisite patience to continue the treatment for a long period. Still, there are not a few who have followed it out steadily for over a year. In advanced cases no treatment is of any use.

Twenty-six cases of endemic hæmoptysis were treated. Much temporary improvement was observed from the inhalation of turpentine.

Appended is a table of meteorological observations kindly supplied by Mr Harbour Master McINNES —

MONTH	THERMOMETER				BAROMETER		RAIN	
	Highest Reading	Average Highest	Lowest Reading	Average Lowest	Highest	Lowest	Number of Days	Rainfall
1886	°	°	°	°	<i>Inches</i>	<i>Inches</i>		<i>Inches</i>
October	90 0	81 0	60 0	68 5	30 34	29 80	8	1 90
November	82 0	72 0	53 5	61 5	30 43	29 84	11	4 76
December	73 0	65 5	44 0	54 0	30 45	30 10	6	5 73
1887								
January	76 0	66 5	49 0	56 5	30 37	29 96	14	6 66
February	76 0	63 5	46 0	54 0	30 53	29 99	15	5 47
March	72 5	55 5	47 5	55 5	30 36	29 93	16	7 89
April	85 5	74 0	48 0	62 5	30 40	29 85	11	6 03
May	86 0	81 0	59 0	69 0	30 12	29 82	9	4 69
June	95 0	89 0	66 0	75 0	30 05	29 75	2	0 38
July	98 0	90 0	70 0	76 0	30 14	29 55	13	12 83
August	96 0	90 5	73 0	75 5	30 14	29 59	3	1 78
September	95 0	89 0	72 0	76 0	30 14	29 55	10	8 15

## DR B S RINGER'S REPORT ON THE HEALTH OF AMOY

For the Year ended 30th September 1887

DURING the past 12 months 10 births have to be recorded, of which one was still-born, one was premature and died two hours after birth, and in one case animation, which was suspended at birth, was restored by the usual means, but the infant died the next day. The other cases were normal.

In the case of the still-born child a prolapse of the funis occurred during the labour. The prolapsed portion was replaced within the uterus by means of a loop of string threaded through a gum elastic catheter, but at each severe pain it again protruded, and although repeatedly replaced, it was finally compressed between the foetal head and the pelvis. The forceps was applied, but the child was dead when extracted.

In the case of suspended animation, the mother (a primipara) was in a state of great exhaustion, consequent on chronic diarrhoea, from which she had suffered for weeks previous to delivery. The child was small and ill-nourished, and only survived one day. The labour was lingering, and afterwards the diarrhoea continued, the patient remaining very weak and taking but little nourishment. The lochial discharge was scanty but not unusually offensive. On the 31d day feverish symptoms set in, but no abdominal tenderness existed. Quinine was given, which produced deafness but did not reduce the temperature, which reached  $107^{\circ}$  on the evening of the 4th day after delivery, when the patient became unconscious and died next morning.

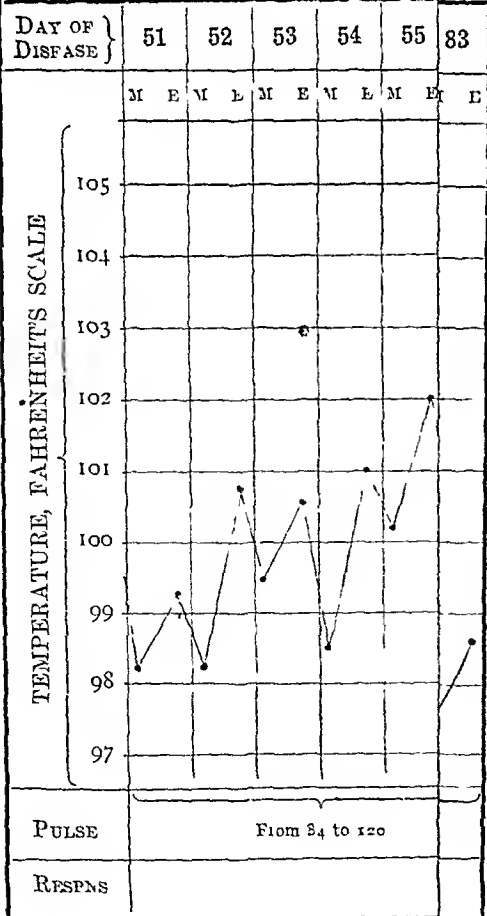
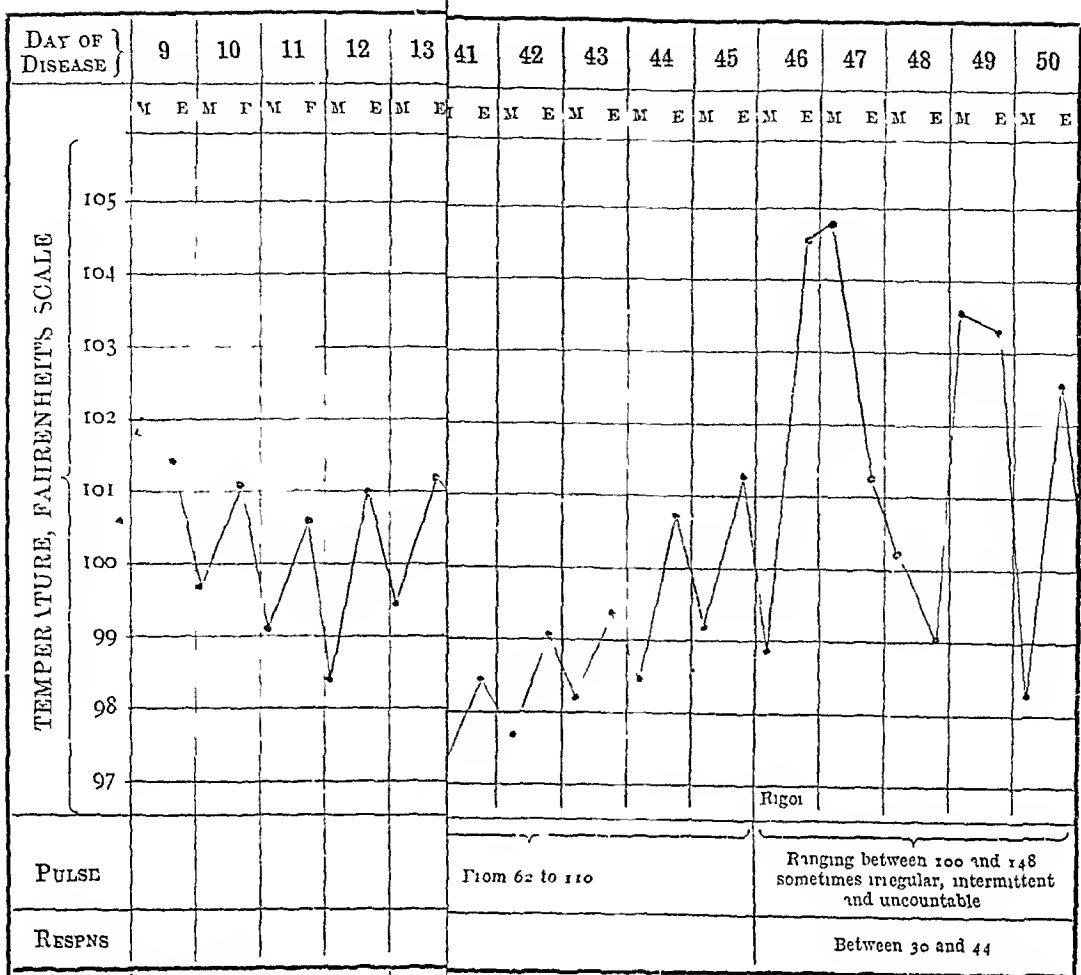
Two other fatal cases occurred, one resulting from remittent fever following attacks of diarrhoea and bronchitis, and the other from concussion of the brain, caused by the patient falling down a steep flight of steps on to a tiled floor below. He became insensible some minutes after the injury, and died in a few hours. The base of the skull was probably fractured, as there was considerable bleeding from one ear.

In the summer months, as usual, diarrhoea, hepatic congestion, febrile disorders and boils were the most frequently attended complaints.

In the latter part of 1886 and early in 1887 a case of remittent fever occurred of such unusual duration and severity that I report it somewhat fully.

In November M<sup>r</sup> —, a robust and powerful Englishman, who has spent 15 years in China, left this port for Shanghai, whence he started in a house-boat on a shooting excursion. After 12 days' journey the boat was moored one night up a creek surrounded by swampy, flat country. The next morning M<sup>r</sup> — felt feverish, but thinking it unimportant he remained in the boat for several days before returning to Shanghai, where, finding his symptoms still continued, he proceeded without delay to Amoy.

On the afternoon of the 13th December, which was calculated to be the 9th day of the fever, the temperature was  $101^{\circ}$  F, skin hot and dry, but no headache, and the patient did not seem in much distress.





He was, however, confined to the house and treated with quinine, and on the 16th December the temperature became normal, rising again the same night to  $101^{\circ}$ . As will be seen by the chart annexed, a variable high temperature persisted, with but very few intermissions, for 68 days, during which time it had twice risen above  $105^{\circ}$ . Slight wandering and incoherence were noted on a few occasions, but as a rule, even with the highest temperatures, the brain was perfectly clear. There was subsequently a daily fall below normal for a fortnight, after which the patient became convalescent, and took a voyage to England, and out again to China *via* America, and up to date has had no return whatever of the fever. The case was diagnosed as one of malarial remittent fever, and in this I was supported by two other professional opinions.

There are several points of interest in this case. I would specially call attention to the extraordinary duration of the fever, and, notwithstanding the long sustained high temperature, the subsequent complete recovery. It will be observed that several sudden rises of  $5^{\circ}$  or  $6^{\circ}$  took place in a few hours, and though they occurred more or less periodically, the intervals were not sufficiently exact to enable these exacerbations to be anticipated with any degree of certainty, although an effort in this direction was of course made. The treatment chiefly relied on was quinine and arsenic alternately and in combination. Whenever an unusually high temperature was reached, as soon as it was found to be clearly on the decline, a 20 grain dose of quinine was exhibited, and repeated if depression was not too great. Some complications rendered it necessary to be extremely cautious in the administration of drugs. For example, at an early stage of the disease the heart was found to be very weak, though no organic disease could be discovered. A short trial of digitalis was made, but produced no marked benefit. Sometimes a systolic murmur could be heard at the apex, and after the temperature had been very high the pulse would become irregular and intermittent and often so feeble as to be quite uncountable. The patient was nursed and watched constantly night and day by thoroughly reliable and intelligent friends, who carried out all instructions most minutely, and met such conditions as that just mentioned by the judicious administration of stimulant and nourishment in small and repeated quantities. But for this, and had the patient been left to himself at night, I have not the slightest hesitation in stating that recovery would have been impossible.

Again, a considerable amount of œdema of the lungs existed, also an elongated and movable condition of the uvula, which produced a most distressing and troublesome cough. A portion of the uvula was therefore removed, with some relief to this symptom, though not, of course, complete, as the accumulation of mucus in the bronchial tubes had to be expelled from time to time. The bowels were sometimes constipated, and much flatulent distension occurred both of the stomach and intestines, which produced great discomfort, while rendering the pulse irregular and intermittent. Great relief was obtained by a purge of calomel, rhubarb and ginger. So sudden on some occasions was this change in the action of the heart that a professional friend, while watching the case with me one day, expressed surprise at finding the pulse irregular and intermittent which I had pronounced regular five minutes before. We observed later on that moving the patient on to his right side would often steady the pulse, which was irregular and intermittent while lying on his left side. Towards the end of January some pain on defæcation was complained of, and on examination a fissure of the anus was found to exist. This probably was the cause of a gland in the groin becoming inflamed, the small abscess resulting, however, was opened and soon healed, as did also the fissure, without operation. To add to the patient's sufferings, about this time a bed-sore threatened on the left hip, but was fortunately averted by frequently bathing the part with whisky and removing pressure as much as possible. During the last few weeks of the fever considerable œdema of the left foot and leg took place, the cause of which was not very clear. It gradually passed off, however, as the patient grew stronger. As a rule, during this attack no cold stage was noted, except on two or three occasions just previous to a rapid rise of temperature. The first happened on the 46th day, the patient was in bed in the same room as usual, where a fire was carefully



maintained day and night, and under precisely similar circumstances to those previously existing. He had taken 20 grains of quinine in the morning and two 3-minim doses of FOWLER'S solution during the day. At 7 P.M. he took some boiled fish, toast and whisky and water with some enjoyment, as he had done for several days previously, a little appetite having returned with the few days' low temperature noted on chart. At 8.30 P.M., without warning, he was suddenly seized with a most violent fit of shivering, lasting an hour, and followed by a rise in temperature from  $101^{\circ}$  before the meal to over  $104^{\circ}$  at 9.30 P.M. There was also slight bilious vomiting. This was the most marked rigor, the others being much shorter and less violent.

It is very interesting in studying this chart to observe the tendency towards an intermittent type, for instance, on the 12th, 28th, 31st and 37th days, also more frequently later on. This peculiarity in malarial remittent fever of long duration I have not uncommonly noticed in many cases treated in North Formosa and elsewhere, also that the interval of intermission becomes longer as the fever approaches its termination.

The temperature in the case under review was taken every few hours day and night, but for convenience the chart records only the lowest morning and highest evening temperatures, except in one instance (38th day), where it was necessary to make a double record in the morning, as on that day the highest point was reached before noon, after which it began to fall.

In the treatment of these prolonged cases, more especially where the heart's action is feeble and sometimes intermittent, I must here record my strong belief in the profound importance of nursing and constantly watching the patient day and night, and I would lay particular stress on this last point, as the night watch is not always easy to arrange in private houses. At this time, though the patient may not, and usually does not, sleep for long together, still he assumes an apathetic condition, with such absolute indifference to surrounding circumstances that I am satisfied, in some cases, death might take place before he would either take or call for food and stimulant or request the fire to be renewed.

It was a satisfactory feature of this case that, except on a very few occasions when the temperature reached a great height and was accompanied by slight bilious vomiting for a short time afterwards, the stomach retained food. Nourishment consisted chiefly of strong soups, broths and milk, as a stimulant, whisky was employed and proved most valuable. Furthermore, the indomitable pluck with which the patient maintained throughout his long and painful illness a hopeful view of his own condition, the persevering and uncomplaining manner in which for many weeks, hour after hour, he swallowed everything put to his lips, and his cheerfulness, even when it was evident his life was hanging by a thread, his voice having sunk to a whisper, his temperature being over  $104^{\circ}$  and pulse uncountable, were important factors in the prognosis, and elements of the utmost value in leading to the favourable issue.

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## DR J H LOWRY'S REPORT ON THE HEALTH OF HOIHOW (KIUNGCHOW)

For the Half-year ended 30th September 1887

DURING the period under review the general health of foreigners resident at this port has been fairly good. No one has been under treatment suffering from the effects of malaria.

There have been two deaths, one from chronic alcoholism and one from cholera.

The summer has on the whole been a cool one. Last year more rain fell during the first part of the half-year, while this year it will be observed from the meteorological table that more rain fell during the latter part. Two typhoons were experienced during September.

So far as I can learn there has been no serious epidemic among the natives around Hoihow. No doubt there have been deaths from summer diarrhoea, as there are at nearly every port in China during the summer months, but there has been no outbreak of cholera.

Dr McCANDLISS has kindly furnished me with some details as to the work done at the Mission Hospital at Kiungchow during the period 1st April to 30th September. 4,668 cases were treated as out-patients, and 145 as in-patients. Of these, 161 cases were treated for intermittent fever, 45 for remittent fever, 72 for enlarged spleen, 41 for dysentery, 11 for chronic diarrhoea and 1 for sporadic cholera. Dr McCANDLISS informs me that a large number of natives suffer from asthma, and in children, with few exceptions, he finds that santonine effects a cure.

*Cholera*—On 25th September 1887, H, at 30, Customs Tidewater, came off steamer duty shortly before 6 A.M. The water being low, he had been about two hours in the boat coming ashore. On reaching his house he was immediately seized with violent purging and vomiting. The purging must have been severe, for he fell twice in his attempt to reach the bedroom upstairs. At 7 A.M. the skin was cold and clammy, and cramps in the feet and calves were violent. Chlorodyne (which was vomited), mustard plasters on abdomen, hot-water bottles, friction, and  $\frac{1}{2}$  grain morphia hypodermically, constituted the treatment. The stools were passed in bed, and the secretion of urine was suppressed. Thirst was intense. Four hours after seizure the skin was shrunken, pinched expression, eyes sunken. At 10.30 A.M. purging ceased, and from this time there was no further vomiting, but nausea was constant. LIEBIG'S extract of beef with brandy was now given cold at intervals. Pulse at wrist could not be counted. At 11 A.M. cramps more severe, affecting chest muscles, patient becoming very restless, paroxysms of dyspnoea, gasping for breath, characteristic voice. At noon patient passed into stage of apathy, and died at 12.30 P.M.

Rigor mortis set in rapidly, and muscular contractions were visible in the thighs for a short time after death. I had no time to take temperature readings. Ice is not procurable at this port, I mention the fact, as it might seem strange that the patient was not given it to suck.

All the information that I was able to get from H was that on the steamer the previous evening, after dinner, he had felt very thirsty, and had drunk five tumblers of water, the fifth tumbler containing

some whisky. None of the officers or crew of the steamer suffered, and there was nothing in the dinner to cause any gastric trouble. Only Hongkong water, filtered, was used for cabin purposes. No one on board heard H complain of sickness, but it was thought strange that he should ask for whisky, as he rarely took any form of spirit. As I have mentioned in another part of this Report, no cholera cases have been reported in this neighbourhood. H for some time had not been in very robust health.

ABSTRACT of METEOROLOGICAL OBSERVATIONS, taken at the Custom House by Mr Harbour Master MULLER, for the Six Months ended 30th September 1887. Latitude,  $20^{\circ} 3' 13''$  N, Longitude,  $110^{\circ} 19' 3''$  E.

MONTH	WIND							BAROMETER		THERMOMETER		No of Days Fog	No of Days Rain	Runfall
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	Highest	Lowest	Highest	Lowest			
							Miles	Inches	Inches	°	°	D h	D h	Inches
April	12	3			15		3	30.28	29.80	90	63	1 0	0 9	1.6
May	10	10			11		3	30.04	29.80	94	75		1 8	5.3
June		12			18		3	29.98	29.69	96	75		0 16	3.3
July	5	8	3	1	14		3	30.00	29.40	91	73		2 12	10.8
August	2	10			19		3	30.02	29.77	93	75		2 12	7.2
September	12	4	4		10		4	30.06	28.95	86	75		4 0	12.9

REMARKS.—On 21st September a typhoon was experienced. At 9 A.M. the barometer stood at 29.68, and continued falling until 7 P.M., when the lowest point was reached, 28.95. At midnight the reading was 29.37. The wind during the day shifted from N.N.W. by N. and E. to S. On 26th September another typhoon was felt, but less severe, the lowest reading of the barometer was 29.20.

# DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 30th September 1887

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the Six Months ended 30th September 1887 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  $8^{\text{h}} 5^{\text{m}} 45^{\text{s}}$

DATE	Barometer at $32^{\circ}$ F	THERMOMETER		Amount of Vapour in the Air per Cubic Foot	Hu- midity, 0-100	Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	No of Days Rain during Month
		Diurnal Mean Tempera- ture in Shade	Extreme Tempera- ture in Shade								
1887	Inch	$^{\circ}$ F	$^{\circ}$ F	Grains			Miles		Inch	Inch	
April	Max	30 330 (3)	71 1 (14)	87 6 (17)	4 650 (10)	89 8 (1)	16 7 (1)	42 87 (27)	S $35^{\circ} 7$ E	5 79	1 46
	Mean	29 978	60 0		3 857	67 2	10 3	15 53			
	Min	29 955 (10)	43 0 (2)	35 6 (1)	1 388 (3)	48 7 (25)	6 0 (25)	1 19 (6)			
	Range	0 375	28 1			41 1	10 7				
May	Max	30 116 (11)	75 0 (31)	84 9 (31)	6 141 (9)	98 0 (13)	15 5 (27)	44 25 (5)	S $58^{\circ} 8$ E	4 73	3 57
	Mean	29 917	65 8		4 968	72 5	11 2	13 85			
	Min	29 572 (27)	56 8 (3)	46 4 (3)	2 577 (14)	28 0 (14)	7 5 (23)	0 74			
	Range	0 544	18 2			70 0	8 0				
June	Max	30 021 (2)	80 2 (25)	91 6 (1)	10 245 (24)	91 3 (20)	16 7 (19)	41 56 (3)	S $62^{\circ} 7$ E	2 29	11 01
	Mean	29 712	72 4		7 129	42 8	12 1	10 80			
	Min	29 440 (13)	67 3 (5)	62 6 (1, 10)	3 642 (2)	55 4 (2)	6 5 (2)	0 62 (17)			
	Range	0 581	12 9			35 9	10 2				
July	Max	30 024 (3)	88 1 (17)	97 9 (16)	11 45 (7)	91 7 (1)	15 0 (1)	45 16 (26)	S $74^{\circ} 7$ E	3 83	6 60
	Mean	29 545	80 2		7 87	79 5	6 6	16 65			
	Min	29 411 (26)	69 1 (1)	63 5 (3)	6 09 (3)	73 4 (20)	4 0 (11, 12, 30)	0 621 (3)			
	Range	0 613	19 0			18 3	11 0				
Aug	Max	29 921 (31)	86 4 (6)	98 6 (11)	10 46 (11)	84 9 (31)	7 8 (10)	31 93 (1)	S $39^{\circ} 6$ E	3 99	2 40
	Mean	29 650	83 5		9 15	76 2	5 9	10 31			
	Min	29 450 (3)	79 0 (2)	73 2 (2)	7 34 (1)	72 4 (27)	4 0 (28)	0 621 (28)			
	Range	0 471	7 4			12 5	3 8				
Sept	Max	30 135 (30)	81 8 (12)	90 7 (21)	10 214 (12)	92 6 (1)	13 5 (28)	27 32 (22)	N $66^{\circ} 7$ E	2 99	9 27
	Mean	29 936	74 9		7 375	79 0	8 7	12 42			
	Min	29 585 (12)	64 0 (30)	61 0 (30)	0 910 (30)	66 9 (30)	4 0 (8)	2 48 (3)			
	Range	0 550	17 8			25 7	9 5				

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich

NOTE —The figures in parentheses indicate the days on which the observations to which they are appended were made Under the headings "Diurnal Mean Temperature in Shade," "Humidity," and "Ozone" they indicate the days on which the mean readings were respectively highest and lowest

For the above table I am indebted to the kindness of the Rev Pere CHEVALIER, S.J., Director of the Zikawei Observatory

It will be observed that although rain was distributed over many days in May, June, July and September, the rainfall was not excessive, sudden and heavy but short showers accounting for most of it. At Zikawei the lowest temperature observed at night was  $35^{\circ} 6$  F, on the 1st April, and the highest  $98^{\circ} 6$  F, on the 11th August. These figures do not correspond precisely with observations in the settlement, where the lowest temperature registered was  $32^{\circ}$  F, on the 3rd April, and the highest was  $98^{\circ}$  F, on the 17th July.

The summer may be described as severe, the range of temperature being wide within limited periods of time. Thus, the minimum and maximum respectively for April were  $32^{\circ}$  on the 3rd, and  $87^{\circ}$  on the 17th, for May,  $44^{\circ}$  on the 6th, and  $80^{\circ}$  on the 23rd, for June,  $58^{\circ}$  on the 5th, and  $83^{\circ}$  on the 24th, for July,  $60^{\circ}$  on the 3rd, and  $98^{\circ}$  on the 17th, for August,  $70^{\circ}$  on the 2nd, and  $97^{\circ}$  on the 15th and 16th, for September,  $62^{\circ}$  on the 30th, and  $92^{\circ}$  on the 9th. April was dry, while the other months were mostly dry with infrequent showers and an occasional torrent. The temperature at night was commonly very high, even in September remaining several nights at  $80^{\circ}$ . Hence much malaise, aggravation of symptoms in fever cases, and serious interference with the progress of convalescents. Obviously, the effect of a given summer on the health and comfort of a community depends, other things being equal, on the height of the night temperature minima much more than on the height of the day maxima.

The diseases prevalent among foreigners were intestinal and other catarrhs, affecting adults and children alike, varying in intensity from mild conjunctivitis to dysentery, enteric fever, mostly of a benign type, hepatic and renal congestions, which, along with dyspepsia, anorexia and sleeplessness, were in part the result of intense heat, and in part due to the means adopted to render the heat more bearable. Here may suitably be mentioned cases of simple ardent fever, vertigo, and ardor urinæ with, rarely, some true cystitis, due directly to the heat, and of menorrhagia as an indirect effect. Four cases of small-pox occurred in my practice, an unusually large number. Many cases of intermittent fever and of acute and muscular rheumatism and neuralgia were observed, and a few of phthisis, bronchitis and pleurisy. It happened, perhaps merely by chance, that I observed an unusually large number of cases of skin disease of the most various kinds, distributed pretty evenly through the months, and boils added greatly to the discomfort of (mostly) new-comers. There was the usual contingent of venereal affections, alcoholism, etc. Among the diseases of children should be specially mentioned whooping-cough and varicella, of both of which many cases were seen. Lumbicoid worms were also of very frequent occurrence.

I had three cases of cholera in private practice, one of which was fatal in 14 hours. All three cases presented themselves in September.

The patient in the fatal case was treated with friction with mustard, hot bottles to the trunk and extremities, blisters over the course of the vagi in the neck, ice to suck, sulphuric acid lemonade as a beverage, and camphor in saturated alcoholic solution every half-hour. Urgent dyspnoea was the prominent symptom in this case. There was no purging after the second hour from the commencement of the attack. The postmortem examination, made  $1\frac{1}{2}$  hour after death, was almost entirely negative. Rigor mortis was very strongly developed, the posterior surface and all the dependent parts of the body were covered with livid patches, the ears and hands were purple. There was no stuning of muscles. The interior of the thorax was intensely hot, but the degree of heat was not ascertained by the thermometer. All the cavities of the heart were tightly distended with fluid and very loosely coagulated blood. The lungs

were somewhat paler than they normally are, but were not collapsed. Much blood poured from the pulmonary arterial branches on section. There were no pleural adhesions, and no ecchymoses on the pleura or pericardium. The small intestine was distended with "rice water." The liver, kidneys and spleen were all of normal appearance, showing no engorgement. The bladder was empty and strongly contracted.

In July a large number of deaths from sunstroke were reported as happening among the Chinese in the settlement, and in August cholera spread widely among them and proved extremely fatal.

With the exception of a certain amount of drainage extension in Hongkew, no sanitary works of any magnitude have been undertaken by the Municipal Councils during the period under review, but the routine of garbage and night-soil removal, sink-cleansing and drain-flushing has been carried out efficiently in the parts of the settlements frequented by foreigners. The Chinese quarters deserve, however, much more attention than they receive. Sooner or later the Councils will have to deal with the question of overcrowding in common lodging-houses, and other houses nominally private but in reality brothels.

There has been no cattle disease worth mentioning during the summer half-year.

The annexed Table of Burials in the Foreign Cemetery has been compiled from the municipal registers.

BURIAL RETURN of FOREIGNERS for the Half-year ended 30th September 1887 \*

CAUSE OF DEATH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	TOTAL
Small pox	1†	1	1‡	1†			4
Typhus fever		1†					1
Enteric fever	1†	f 1		1†		1	4
Remittent fever				1		f 1 f 2‡	5
Alcoholism				2	1 f 1		4
Cholera					2 f 1‡ {	1 f 1 f 1   8† f 1‡ f 1‡	16
Phthisis	1‡		1†	1‡	1	1†	5
Bright's disease			2‡			1‡	3
Sunstroke				1 1†			2
Dysentery					1	{ 1 f 1 f 1   f 1‡   1‡ }	6
Apoplexy				1		f 1	2
Disease of cord				1†	1†		2
Spinal meningitis						1	1
Heart disease			1	1 f 1 1†		f 1‡	5
Hydropneumothorax				1			1
Peritonitis					1†		1
Hematemesis	1						1
Acute and chronic diarrhoea			f 1		f 1	1‡	3
Cholera infantum	1†				f 1‡		1
Cirrhosis of liver							1
Hepatic abscess		f 1		f 1		1	2
Cancer of uterus				1†			1
Fractures and contusions	2†		1	1†			4
Drowned		2†		1†			3
Uncertified				1†			1
TOTAL	7	6	7	18	12	29	79

\* Not including deaths (if any) among the Catholic religious bodies and the Japanese, exclusive also of premature and still births.

† Non resident

‡ Asiatic or Eurasian

|| Infant.

f Female

Subtracting from the total of 79 deaths 7 due to accident, of which 3 were by drowning, there remain 72 deaths to be attributed to disease. There were 12 deaths among children, thus distributed — 5 of European birth, children of residents, 2 children of European visitors, and 5 non-Europeans. The age of the oldest child was 9 years, that of the youngest was 30 hours. The foreign adult mortality from disease was therefore 60, or, excluding 10 adults of Asiatic birth, the European adult mortality was 50. Out of this number 21 were non-residents. The mortality among resident European adults was therefore 29.

#### I — CAUSES OF DEATH FROM DISEASE among RESIDENT EUROPEAN ADULTS

Enteric fever	1 (female)	Sunstroke	1
Remittent fever	3 (1 female)	Apoplexy	2 (1 female)
Cholera	4 (1 „ )	Spinal meningitis	1
Phthisis	1	Cardiac diseases	4 (1 female)
Alcoholism	4 (1 female)	Diarrhœa and dysentery	5 (3 females)
Cancer	1 (female)	Hepatic abscess	2 (1 female)

18 males and 11 females, against 14 males and 9 females during the last previous corresponding period

#### II — CAUSES OF DEATH FROM DISEASE among the CHILDREN of RESIDENT EUROPEANS

Small-pox	1	Dysentery	1 (female)
Enteric fever	1	Hæmatemesis	1
Cholera	1 (female)		

3 males and 2 females. There were no deaths among European children during the summer half-year of 1886

#### III — CAUSES OF DEATH FROM DISEASE among NON-RESIDENT EUROPEAN ADULTS

Small pox	1	Disease of spinal cord	2
Typhus fever	1	Cardiac disease	1
Enteric fever	2	Peritonitis	1
Cholera	8	Cirrhosis of liver	1
Phthisis	2	Uncertified	1
Stroke	1		

21 males, against 19 males during the corresponding period of 1886

#### IV — CAUSES OF DEATH FROM DISEASE among CHILDREN of NON-RESIDENT EUROPEANS

Diarrhœa	1	Dysentery	1 (female)
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#### V — CAUSES OF DEATH FROM DISEASE among NON-EUROPEAN ADULT FOREIGNERS

Small-pox	1	Bright's disease	3
Cholera	2 (females)	Cardiac disease	1 (female)
Phthisis	2	Dysentery	1

7 males and 3 females, against 5 males in the corresponding six months of the previous year

#### VI — CAUSES OF DEATH FROM DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Small-pox	1	Cholera	2 (females)
Remittent fever	2 (females)		

1 male and 4 females, against 1 male and 1 female in the previous summer six months

We may note as something phenomenal in Shanghai the death of a foreign infant from small-pox in May. The child was three months old and was unvaccinated. The three cases of remittent fever which proved fatal among Europeans were certified as "pernicious."

One of these I saw in consultation. The patient, who had no malicious history, had an abortive sunstroke on the 11th July, which laid him up for two days. On the 14th he played in a cricket match under a blazing sun, and spent the evening at lawn tennis. While thus engaged he suddenly began to shiver, his skin became burning hot, and he presently burst into a profuse perspiration. His friends made him drink half a tumblerful of brandy. When seen at 9.30 P.M. he was semi-delirious, talking incessantly and so restless that no accurate observation of his temperature could be taken. The mercury, however, speedily rose to  $104^{\circ}$  F in the axilla. His pulse was slow, full, but extinguished by the slightest pressure. On the 15th his temperature throughout the day was about  $102^{\circ}$  F, he remained in a shaded room, and his skin was thickly covered with prickly heat. He felt so well that he was anxious to go to his office. On the 16th he had dressed to go to business when he suddenly became comatose and died before assistance could reach him. One hour after death the temperature in the axilla was  $110^{\circ}$  6 F.

I was disposed to class this as a fatal form of the "fièvre de surmenage" which will be found described on page 26, but the patient's medical attendant would not accept this diagnosis.

Death from pernicious fever among the children of Malays should be of frequent occurrence, judging from the conditions under which these unfortunates live in the marshy back slums of Hongkew. Two fatal cases are reported, but it is probable that this number by no means adequately represents the mortality.

To deny absolutely the existence of a dangerous and even fatal form of remittent fever in Shanghai would no doubt be rash and unjustifiable in face of the number of deaths, diminishing, however, year by year, certified as attributable to it. But this I can positively say from my own experience, that whenever a fever lasting more than a week, presenting exacerbations and remissions which may or may not correspond respectively to evening and morning hours, with slight and irregularly recurring rigors and sweats, languor, anorexia, nausea, sleeplessness, headache or lumbar pain, restlessness, wherein the temperature varies in an irregular manner through the 24 hours between  $101^{\circ}$  F or a little lower, and  $103^{\circ}$  5 F or a little higher, where the cardiac action, at first unchanged, loses in force and increases in frequency as days pass by, where there is furied tongue, thirst, yellow diarrhoea or obstinate constipation, where quinine has little effect or none—whenever such a fever has under my hands proceeded through stages of increasing gravity to a fatal termination, and that I have been able to secure an autopsy, I have invariably found, in greater or less development, the intestinal lesions of enteric fever.

Yet, up to 20 years ago it was held as a pious opinion by the earlier practitioners that enteric fever was unknown in Shanghai. I have still a keen recollection of the scornful pity bestowed on my inexperience when, coming in 1868 straight from a large fever hospital in Ireland, I insisted that a case which I had been invited to see in consultation as a very menacing form of remittent was really one of enteric fever. It was my first case in Shanghai. The patient, who had already been ill for more than a fortnight, died 48 hours later, exhausted by perfectly characteristic diarrhoea, which had been sedulously kept up by the administration of from 45 to 60 grains of quinine daily, and by reckless abuse of exclusively milk diet. A large and sudden hæmorrhage was the immediate cause of death. This had beginning naturally impressed me deeply, and very careful registration and comparison of the multitude of cases of fever which have come under my observation in the 19 years which have since elapsed lead me to confirm the assertion which I have already often made in these Reports, that the great majority of fevers which are classed as obstinate remittents are really enteric.

No less than 5 females fell victims to cholera out of a total mortality of 16, a circumstance, I think, unprecedented here, where the exciting causes of this disease usually



seem to be exerted almost exclusively on men. Two were infants, a fact in itself sufficiently uncommon, two were Asiatic adults, and one was a European living under apparently excellent hygienic conditions. One-half of the total number of fatal cases came from the shipping.

It is significant that 13·8 per cent (4 deaths out of 29) of the adult European mortality was due to alcoholism.

In the absence of any local registration of disease it is impossible to give the average per-centage mortality of the forms of enteric fever encountered in Shanghai. But considering the frequency with which cases of the disease present themselves, four deaths in six months does certainly not represent a high fatality. Two of these deaths occurred in non-residents, in at least one of whom the disease was already far advanced when the patient arrived in Shanghai. One occurred in the case of a male child aged 3½ years, regarding whom I have no particulars. The fourth case, in a woman aged 40, was under my care.

She was an overworked and underfed woman who had passed through many attacks of remittent and intermittent fever. On the 23rd May, after five days of paroxysmal shivering, for which she had treated herself with quinine, she was found in the evening with a temperature of 104°·5 F, severe interscapular pain, and frequent stools of typhoid character. Next day she was sleepless, delirious and so restless that no satisfactory temperature observation could be taken. Her tongue was brown and baked, with red, fissured tip and edges. She was ordered into hospital. For the next two days her condition remained unaltered, except for the supervention of intense pain in the muscles of the back on any attempt at movement. There was unceasing fly-catching, searching for objects under the bedclothes and starting of the tendons in the forearm. Evening temperature, 105° F, respiration, 60, extremely deaf. Profuse sweating, tearing up of night-dress and bedclothes during the night of 26th-27th, followed by coma vigil. On the 27th she was insensible, finger and toe nails blue. Temperature in evening, 105°·2 F. On the 28th she died in the early morning, not having regained consciousness.

The only fatal cases of Bight's disease occurred in Malays.

Dysentery and diarrhoea were not prevalent. The total mortality from all forms was nine, of these, three were in European children, two were in male European residents, three were in European resident females, and one in a male Asiatic. It happened that out of the nine fatal cases five occurred in females.

Two of the male cases were men broken down by excesses of all kinds, one of the females had been exhausted by a severe attack of small-pox immediately before her fatal illness, while another was in the same condition as the men just referred to.

In the case of hæmatemesis in an infant, fatal in April, though hæmorrhage from the stomach appeared to be the immediate cause of death, the pathological condition lay much deeper.

The child was born on the 19th April 1887. The mother had borne three children previously. The first labour had been tedious, but terminated naturally, the second had been terminated with forceps, the medical attendant explaining that future labours would probably be at least equally difficult. This was before the mother left England. In November 1885 I delivered her at term with considerable difficulty, the head being arrested at the brim by a smooth bony outgrowth from the anterior surface of the body of the first piece of the sacrum. It was a true exostosis, the condition known as spoudyloisthesis being completely absent. The child was apparently dead, but recovered eventually and lived. In June 1886 the mother again became pregnant, and I was anxious to induce premature labour at the seventh month, but

was not permitted to do so. When labour set in I found that the growth had enlarged considerably, but was still smooth, presenting an ellipsoidal surface, and encroaching on the inlet to such an extent as to reduce its antero-posterior diameter to a little over 3 inches. The pains were slight and infrequent, and with the aid of an occasional dose of chloral were rendered bearable during 24 hours, a fair amount of sleep being obtained and sufficient nourishment taken. Twenty-six hours from the commencement the os was well dilated, the contractions regular and powerful, but the head remained perfectly movable above the brim. An attempt to extract with BARNES's forceps failing through repeated slipping, I applied TARNIER's instrument, and after 20 minutes of moderate traction the child was delivered. For a couple of minutes it did not breathe, but soon appeared to recover completely. The position of the blades of the forceps was marked by superficial bruises, but the skin was not broken. There was a deep depression of the skull above and in front of the left ear, corresponding to the sacral exostosis. The child took food and slept naturally for 24 hours. It then had a slight convulsion of the right arm, began to breathe with great rapidity and shallowness, and could no longer swallow. Its skin meanwhile became pungently hot. Four hours after the onset of the symptoms it vomited about 4 ounces of blood and died in a general convulsion. No postmortem was permitted. No doubt the left motor region of the cerebral cortex had sustained injury by the bulging inward of the parietal and frontal bones, and mechanical injury may also have been inflicted on the medulla oblongata by the forceps traction. The cause of the hæmatemesis is not, however, clear. Turning might perhaps have succeeded better, but the case lay within, though barely within, the limits of forceps application.\*

\* Pregnancy occurred again in December 1887. Early in July 1888 I induced premature labour, delivering without any difficulty a strong female child weighing 5 lb.

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## CLINICAL STUDIES OF DISEASE AS OBSERVED IN CHINA

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### INTRODUCTION

THE following studies are neither more nor less than abstracts from a vast collection of careful records which have accumulated in my case-books during the last nineteen years, together with obvious inferences from them. They deal primarily with forms of disease observed in Shanghai, but wherever necessity and authority exist for modifying any description so as to make it applicable to China in general, the fact will be indicated and the modification made either in the text or notes. They are essentially clinical, but it would have been impossible, even if it had been altogether desirable, rigorously to exclude some few paragraphs devoted to pathology and others detailing anatomical appearances. Senior practitioners will find in them only reminiscences of their own observations, but junior men may derive some advantage from the gift of ready-made experience. Every statement of fact has been repeatedly verified, and every deduction has been conscientiously weighed. The faults that cannot fail to be found will therefore be errors of omission, the nature and form of these studies are too modest to admit of many errors of commission.

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### CHAPTER I

#### SIMPLE CONTINUED FEVER

By this term I mean to indicate an affection characterised by high bodily temperature and other manifestations of the febrile state, not contagious, having no specific eruption, unaccompanied by structural complications, and usually of brief duration.

Under it cases of abortive enteric fever are doubtless often classed. To it also is occasionally attributed the malaise accompanied by slightly increased temperature, without any noticeable periodicity, from which at any season of the year old malarious patients are liable to suffer. Worms or other mechanically irritating matters in the intestines of young adolescents,

in whom the spinal cord has lost the excessive excitability of the infantile period of life, not infrequently cause sharp febrile symptoms instead of the muscular twitchings or general convulsions which would betray their presence in earlier years. In these cases of febrile reaction against gastric or intestinal irritation, there is, however, often a tendency to assume the remittent type which is sufficient to suggest a correct diagnosis. On the other hand, it has happened that the initial symptoms of enteric fever in children have been treated with anthelmintics, with results the reverse of salutary. It is often impossible to establish the diagnosis between abortive typhoid and a non-specific fever, but in cases with a history of previous malarial attacks, and where the fever, though continued, is really of malarial origin, the rapidity with which quinine acts beneficially suffices to indicate the true nature of the affection.

Setting aside these sources of fallacy, this form of fever declares itself, in the vast majority of instances, in hot weather, and assails, by preference, new arrivals. Its commonest antecedents are imprudent exposure to the sun, exercise in superheated air, sudden chill with arrest of perspiration, or over-indulgence in stimulating food and alcoholic liquids. Mental fatigue and emotional shock should also be cited as causes, at all events, they certainly exasperate the action of the other causes enumerated. In one case related farther on the only assignable cause was exposure to the gases arising from the decomposing contents of a cesspool.

The attack is generally of short duration when simply and judiciously treated, although the initial symptoms are often alarming enough. It may, however, last for several days and entail a lengthy convalescence. Every degree of severity is encountered, from mere malaise to a condition of great gravity. In a case of average violence the face is flushed or very pale, the conjunctivæ injected, there is intolerance of light, intense throbbing headache, often accompanied by severe lumbar pain and cramping pains in the extremities, sleeplessness, dry pungent skin, with an axillary temperature of from  $103^{\circ}$  to  $105^{\circ}$  F, rapid bounding pulse, palpitation on exertion, white or brown loaded tongue, usually with red edges, complete loss of appetite, urgent thirst, nausea, diminished urinary secretion. The bowels may be either costive or relaxed. Dyspnoea may or may not be present. Vomiting is not constant, but when it occurs the vomited matters consist at first of undigested food, then of tenacious mucus, and finally contain much bile as the attack is beginning to pass off.

This array of symptoms declares itself without warning in the course of a few hours. As a general rule, confinement to a dark room, complete mental and physical rest, ice to the head, saline laxatives and diaphoretics, with iced lemonade in small quantities at a time, suffice to bring the attack to an end within 48 hours, sweating, diuresis and fetid stools marking its termination. When it proves more obstinate, general treatment with the cautious exhibition of quinine, salicylate of sodium or antipyrine may be required for a longer or shorter period. In the early stage quinine only adds to the distress. Occasionally, nervous exhaustion from persistent sleeplessness appears to maintain the fever, which vanishes immediately after sound sleep has been procured by a dose or two of chloral with digitalis. Recurrence after complete defervescence, which frequently characterises this fever elsewhere,\* is seldom observed here.

\* For instance, Guadeloupe. GUEGAN, in *Archives de médecine navale*, 1878, i, 81

I have seen but one fatal case, and I must admit that my diagnosis in that instance was not accepted by the patient's ordinary medical attendant —

The patient, who had spent several years in Shanghai and had never suffered from any malarial affection, had an abortive sunstroke on the 11th July, which laid him up for two days. On the 14th he played in a cricket match under a blazing sun, and spent the evening at lawn tennis. While thus engaged he suddenly began to shiver, his skin became burning hot, and he presently burst into a profuse perspiration. His friends made him drink half a tumblerful of brandy. When seen at 9.30 P.M. he was semi-delirious, talking incessantly, and so restless that no accurate observation of his temperature could be taken. The mercury, however, speedily rose to  $104^{\circ}$  F in the axilla. His pulse was slow, full, but extinguished by the slightest pressure. On the 15th his temperature throughout the day was about  $102^{\circ}$  F, he remained in a shaded room, and his skin was thickly covered with prickly heat. He felt so well that he was anxious to go to his office. On the 16th he had dressed to go to business when he suddenly became comatose and died before assistance could reach him. One hour after death the temperature in the axilla was  $110^{\circ} 6$  F.

It is evident that this form of fever closely touches the effects of sunstroke and has marked affinities with the "*fièvre de suimenage*" of French authors\*. As it may arise from causes so various as sudden suppression of perspiration, exposure to the sun, excessive fatigue, mental exhaustion or shock, the introduction of noxious matters or of matters whose products of disintegration are noxious into the alimentary canal, or the inhalation of foul gases, the question naturally arises whether there is any condition common to all these diverse accidents. That condition is found in the contamination of the blood by poisonous substances absorbed from the pulmonary or intestinal surface. In the latter and far more common case these substances are leucomaines and extractives of autogenetic (esogenetic) origin, or heterogenetic (exogenetic) ptomaines. Whether the vital reaction against these alkaloidal poisons shall take the form of simple fever or of fever with intense visceral congestion and profound typhoid state, or of choleraic symptoms with tendency to collapse, obviously depends on the nature of the poison in each individual instance. Nor is this surprising when we consider the variety of organic poisons which are constantly being fabricated in the healthy body, while their number and character are susceptible of limitless change. It is matter of daily observation that in cases of malaise from constipation the first effect of a purgative, before the bowels are relieved, is to aggravate the feeling of illness, doubtless by stirring up, rendering soluble, and temporarily promoting the absorption of the toxic products contained in the accumulated feces.

I deal at present only with the lighter form, where either a minimal quantity of the poisonous substances produced is absorbed or the substances themselves are the least toxic or by their nature are subject to rapid disintegration in the economy and speedy disappearance. We are familiar with the disastrous effects of over-driving cattle, whereby their flesh is rendered poisonous to the consumer, immediate postmortem rigidity and rapid putrefaction moreover attesting the profound alteration which has taken place in their tissues.

There is a remarkable case related by BERTHERAND, in which putrefaction began immediately after death in the body of the victim of an assassination. It was ascertained that the murderer had pursued his prey during several hours before he inflicted the fatal blow.

\* An admirable collection of instances of this fever is published by Dr. RENDON. Thèse de Paris, 1888.

Writers on the hygiene of armies in the field have at all times noted the grave fevers which, especially among young soldiers, follow forced marches. In the severer cases albumen appears in the urine, while the ratio of urea is largely diminished. These however are extreme instances, and such forms are only very rarely encountered in civil practice here or elsewhere. Out of the many cases of which I have preserved notes, albuminuria is recorded only once. But the symptoms are of the same kind, though less in degree, and there is abundant evidence (LIEBIG, CHALVET, BOUCHARD) that in the graver cases the amount of extractives in the blood is largely increased.

To the same class of fever should be referred the "fever of growth" of young children, first studied by BOUILLY in 1879, where the emunctories are incapable of overtaking the accumulation of the products of rapid tissue oxidation. The beneficial effect of moderate doses of the salicylates, and especially of complete rest in bed, whereby the rapidity of tissue change is moderated, is readily explained on this supposition.

In making the following brief abstracts of cases I have selected those in which, besides the ordinary train of symptoms, there were some peculiarities special to each case —

#### CASES OF SIMPLE CONTINUED FEVER

1 *Lividity of Surface* — S, male, aged 42, merchant. On the 7th June had been up country, and bathed three times in a creek the water of which he noticed smelt a little fishy. The sun was very powerful, but ordinary precautions against exposure to it were taken. Headache and sleeplessness through night of 7th to 8th. Previously described symptoms, with marked lividity of surface in addition. Vomiting of mucus. Temperature at 3 P.M. on the 8th June,  $105^{\circ}$ , pulse 132, small and incompressible. Much dyspnoea. 15 grains each of calomel and ipecacuanha induced abundant bilious purging and vomiting. The temperature at night was  $104^{\circ} 5$ . Next morning the temperature was  $97^{\circ} 2$ , and did not subsequently rise above normal.

2 *Exposure to Gases of Putrefaction, Abdominal Pain* — J, male, aged 40, storekeeper's clerk, from Ningpo. Vague malaise all night of 31st May to 1st June 1874 after superintending the emptying of a deep cesspool in which the putrid bodies of several dogs and cats were found. Next day (1st June) severe pain across abdomen at level of transverse colon. Urine red, scanty, scalding. Constipated. Sent to Shanghai. On the 31d day anorexia, intense headache, etc., dyspnoea. Temperature in mouth at noon,  $105^{\circ} 2$ . So much superficial tenderness of front and sides of abdomen that percussion was impossible. 15 grains of ipecacuanha, followed in four hours by a glass of sedlitz water, produced bilious evacuations. On the 4th June all acute symptoms had disappeared, but patient remained ailing, though fever-free, for more than a week.

3 *Rigors* — R, male, aged 42, lightkeeper. Had never suffered from any malarial affection. Had to superintend repairs of lantern of lighthouse on the 15th August under a blazing sun during two hours, being then in perfect health. Sleepless night, burning skin, series of rigors. Rigors repeated on the afternoon of the 20th, on neither occasion followed by sweating. Not seen until the 25th August as he had to wait the chance of a passing steamer to take him off his rock. Usual symptoms, with intense muscular pain located in buttocks. Temperature at 4 P.M. on the 11th day,  $104^{\circ}$ . He stated that he was then no hotter than he had constantly been since the 15th inst. No action of bowels for three days. Castor oil enema followed by sedlitz water. Copious evacuations, at first nearly colourless, later containing much bile. Temperature next morning,  $101^{\circ} 5$ . It varied between  $100^{\circ}$  and  $102^{\circ}$  for three days during which

the medicinal treatment consisted in small doses of salicylate of soda and saline laxatives. On the 28th August the temperature fell to normal, and did not again rise.

4 *Intermittent Action of Heart*—C, male, aged 22, clerk. Much physical fatigue supplementing anxieties of a particularly urgent kind. Has had a varnish eruption for two or three days. 20th July—Series of chills followed by sweating. The varnish eruption disappeared subsequent to onset of rigors. Temperature at 7 P.M.,  $103^{\circ} 8$ . Heart intermittent, losing every fourth or fifth beat. (Patient has never smoked tobacco.) Pulse 120, incompressible. Four drachms of sulphate of magnesia induced several large passages. Next morning (21st July) the temperature was  $101^{\circ}$  and there was marked tenderness of the chest walls. The purgative was repeated, and small doses of salicylate of soda with digitalis ordered. In the evening the temperature had fallen to  $99^{\circ} 3$ , pulse 72, soft and full. Heart's action regular. There was no subsequent recurrence of any of the symptoms.

This patient had been under observation for a year before the attack described and remained here for three years after it. Neither before nor after did he exhibit any symptoms of malarial intoxication.

5 *Suppression of Urine*—Y, female, aged 9. Taken for a walk in afternoon of 20th September, and subsequently romped with other children in the Public Garden. Restless night, burning skin, suppression of urine. Next day dyspnoea, severe dry cough, twitching of muscles. Temperature at noon,  $103^{\circ} 8$ . Treated with calomel and ipecac. Four hours later had four extremely fetid passages, vomited a quantity of mucus, diuresis setting in almost simultaneously, after suppression for 23 hours. Next morning the temperature was  $98^{\circ} 6$ , pulse 84, normal in character. No recurrence.

6 *Palpitation, Subsultus Tendinum, Recurrence (?)*—H, male, aged 24, clerk. February 1885—Had passed two sleepless nights over some urgent work, then rode in a paper hunt and was seized with vertigo when approaching a wide water-jump. Was half drowned and helped home. Semi-unconscious at night, slight delirium, twitching of muscles of forearms. Temperature  $104^{\circ} 8$ , pulse bounding. 15 grains of calomel placed on tongue. Several fetid stools next morning. Temperature then  $102^{\circ} 2$ , falling towards evening to  $99^{\circ}$ . Late at night it had risen to  $99^{\circ} 5$ . On the morning of the 3rd day it was normal, and so continued for 72 hours, vague malaise with palpitation on exertion persisting. There was then a doubtful recurrence with a rise of temperature to  $100^{\circ}$ , but there was no nervous disturbance. Patient took a dose of castor oil on his own account, and from this out convalescence proceeded satisfactorily but slowly with the aid of an occasional sleeping draught at night.

7 *Albuminuria, Dyspnoea*—G, male, aged 37, Consular assistant. Prolonged exposure to sun on 1st August. Restless night, with burning skin and frightful nightmare. On the 2nd, temperature  $100^{\circ}$  in the morning,  $100^{\circ} 5$  at night. Pulse bounding, array of symptoms as described. Urine, 5 fluid ounces in 24 hours. Seidlitz, and confinement to dark room. 3rd August—Morning temperature  $99^{\circ} 9$ , extreme prostration, dyspnoea, dry cough. Bowels had not moved. Urine scanty, faintly albuminous. Calomel 15 grains. Smart purgation in afternoon, profuse sweating and diuresis. Evening temperature  $100^{\circ} 5$ . 4th August—Slept fairly, appetite returning, temperature at 7 A.M.,  $99^{\circ}$ , at noon,  $99^{\circ} 5$ , at night,  $99^{\circ} 3$ . The temperature fell to normal on the 5th day, but convalescence was unsatisfactory, and the urine continued clouded with albumen. After a fortnight at Chefoo, patient returned to Shanghai perfectly well. Repeated subsequent examinations of his urine at intervals of a month or so proved it to be free from albumen.

8 *Uselessness of Quinine in early Stage*.—H, male, aged 20, store clerk. Ill for five days after a game of tennis in the sun. Habits irregular. Has taken quinine daily in doses of about 15 grains. Temperature at 2 P.M. on 6th day (30th August),  $103^{\circ} 2$ . Deaf. Constipated. Conjunctivæ injected, intense headache, dry skin. Calomel 15 grains ordered. At night no action of bowels, temperature  $104^{\circ} 8$ . Restless night, horrible dreams. 31st August—Temperature at 7 A.M.,  $103^{\circ}$ . There had been one very small, hard and extremely offensive stool. Seidlitz. Several copious fetid stools in afternoon. Temperature at night,  $99^{\circ} 5$ . 1st September (8th day), at 7 A.M., temperature  $100^{\circ} 7$ , all symptoms abated. Temperature normal at night.

9 *Fever of Growth*—K, female, aged 8 Growing very rapidly Sleepless for three nights, complaining of intense pain in shoulder-joints and knees Pain diminishes during day Appetite lost, urine scanty, offensive diarrhoea, nausea, skin described as constantly hot Temperature at 4 P.M. on 2nd September,  $104^{\circ} 2$ , pulse 156, respiration 35, lips livid No discoverable cardiac lesion One-third of a bottle of limonade Roge induced smart purgation, with fall of temperature to normal next morning, and complete relief of pain Citrate of potash was given for a few days, and for at least two months there was no recurrence of the symptoms

10 *Persistent Sleeplessness*—D, female, aged 27 Suffering more or less from sleeplessness for several weeks, but refused sedatives Chronic dyspeptic After a garden party on a hot October afternoon was found next morning with a temperature of  $103^{\circ} 2$ , dry pungent skin, scanty urine, constipation and headache The temperature diminished gradually under saline treatment through three days, then remained for two days between  $100^{\circ}$  and  $101^{\circ}$  Meanwhile the patient hardly slept at all, cardiac action was flagging, and marked restlessness was developed, with slight and fugitive delirium After a dose of chloral and digitalis which induced eight hours of tranquil sleep she woke free from fever, and convalescence was thereafter uninterrupted

11 *Delirium*—M, aged 45, merchant Severely overworked at close of July 1885, and noticed that his skin was hot, appetite lost, urine scanty and scalding, and that he could not sleep Seen on the 2nd August Morning temperature  $103^{\circ} 5$  Had passed a sleepless night, walking about his rooms, talking and gesticulating Of this he had no recollection His urine was so irritating in character that it had caused a slight purulent methitis Treatment with calomel and salines Fever fell to  $101^{\circ}$  at night Delirious but quiet until towards morning he fell asleep for two hours Had several semi-solid and liquid passages with much bilious vomiting after waking Morning temperature  $99^{\circ} 8$ , very prostrate all day Temperature in the evening normal Slept all the next night after a chloral draught, and showed no recurrence of fever Ailed, however, for a week, and was finally obliged to recruit at Chefoo

12 *Epistaxis, Herpes*—MAC, aged 27, marine engineer Fever began with general malaise, headache, lumbar pain, weariness, loss of appetite, slight diarrhoea, scalding and scanty urine There had been no shivering Patient referred symptoms to New Year festivities Seen in forenoon of the 6th January, the fifth day of his illness Tongue moist, white, red tip and edges Pink flush on each cheek, manner stupid No abdominal tenderness Temperature in mouth,  $104^{\circ}$  Seidlitz water and acetate of ammonia During the following days the morning and evening temperatures respectively were  $103^{\circ} 2$  and  $102^{\circ} 2$ ,  $102^{\circ} 3$  and  $102^{\circ} 2$ ,  $101^{\circ} 2$  and  $101^{\circ} 8$ ,  $100^{\circ} 2$  and  $100^{\circ} 6$ ,  $99^{\circ}$  and  $99^{\circ}$ ,  $98^{\circ} 4$  and  $98^{\circ} 6$  On the tenth day of his illness he had a smart hæmorrhage from the nose, and in the evening his lips were covered with a herpetic eruption

It will be observed that although calomel was administered in a large number of the cases recorded, it was used solely as an efficient and painless purgative, it represented no adhesion to the old Indian practice of treating these fevers with mercurials, a practice justly denounced by FAYRER, CHEEVERS, MOORE and other modern authorities on tropical disease

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I have notes of 105 cases of fever belonging to this category occurring among Chinese, and treated, some few in private, but the majority in hospital

The patients' ages varied from 19 to 50 Sex is of little importance, as far more men than women are received into Chinese hospitals, males, however, formed 91.5 per cent., females 8.5 per cent



*History previous to admission* — *Loss of appetite* for periods varying between four days and three weeks *Rigors* once or oftener in 85 per cent *Sweating* in 17 per cent *Burning heat of skin* in all *Delirium* had occurred in 34 per cent, including 17 per cent of mania with extreme violence When delirium occurred it showed itself between the 5th and 12th days, mania between the 4th and 10th days *Vomiting* had been present in 105 per cent The *tongue* was noted in all as "dry," or "dry and dirty," or "red and hard" The *skin* was generally dusky, though this was often doubtful No spots were ever found *Pain* usually not reported, when present it had been in head or head and chest, or epigastrium, or "severe abdominal" in 8 per cent *Pulse* either soft and sometimes intermittent, or wiry The patients were invariably *sleepless* There was invariably a history of *constipation* for from three to eight days The highest *temperature* noted on admission was 104° 8, on the 12th day of fever, the lowest was 100°, on the 16th day *Cough* had occasionally been observed In almost all it is noted that the abdomen was "swollen," tympanic in 15 per cent In no case was there any specially localised tenderness

The duration of the fever, excluding one case sedulously treated with quinine, varied between 11 and 17 days

In all, the temperature fell continuously from the beginning of treatment, where this consisted in simple purgation In some few, quinine was administered concurrently with purgatives, but the temperature did not fall steadily until the administration of quinine was arrested In one case quinine was persisted in, but in spite of it, or in consequence of it, the temperature remained above 100° until the 32nd day, when this treatment was abandoned, and the temperature immediately fell The routine treatment came to be simply by castor oil in repeated doses This always produced copious stools of extreme fetor, the temperature generally rising from 1° to 2° between the administration of the oil and its operation In 18 per cent it is noted that the purgative was followed by profuse sweating

All the cases terminated in recovery

A relapsing form was observed once —

A wood-carver, aged 23, was brought to hospital on the 23rd June 1887 He was reported to have been ill on and off for several weeks He was sleepless, his skin was burning, his tongue baked, had had no stool for five days, had complete loss of appetite, and was much wasted His skin was dirty yellow, conjunctivæ pearly, mucous membranes pale, bluish There was slight enlargement of both liver and spleen He was purged on admission, with evacuation of large fetid stools Temperature, which was 102°, fell next day to normal, and so remained for eight days It then suddenly rose to 104° 8, and it was discovered that he had gone for four days without a stool Active purgation reduced the temperature again within 24 hours to normal, at which it remained until patient's discharge on the 20th July Meanwhile he had been treated with aloes, iron, and strychnine with cod-liver oil, the latter apparently regulating the bowels as well as improving his blood condition When discharged he was in robust health, his mucous membranes well coloured, and his weight increased by 15 lb

## DR ROBERT H COX'S REPORT ON THE HEALTH OF PAKHOI

For the Half-year ended 30th September 1887

DURING the past six months the health of this port has been fairly good

The foreign residents now consist of 22 individuals, amongst whom the following diseases were treated —

Delirium tremens	1	Anæmia	1
Asthma	1	Otitis	2
Rheumatism	2	Measles	3

Of the above, the advent of delirium tremens was probably hastened by undue exposure to the sun

The three cases of measles all occurred in the same family. The first was interesting as limiting the incubation stage to 10 days, for the steamer with the patient on board called at Hongkong, where measles was prevalent just that period before the development of symptoms. Cases 2 and 3 exhibited a marked slowness to receive infection, being three and seven weeks respectively after the eruption in the first case had disappeared. All recovered without any complication.

Among the Chinese an epidemic of cholera was said to have broken out at Lienchow early in the summer, and some cases of sudden death occurred in Pakhoi, said to be due to the same disease, but no case came under my observation.

I append a meteorological table for the six months, prepared by Mr W BRENNAN, Tidesurveyor

MONTH	BAROMETER		THERMOMETER		WINDS						RAIN
	Highest	Lowest	Highest	Lowest	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	
	<i>Inches</i>	<i>Inches</i>	°	°							<i>Inches</i>
April	30 30	29 77	89	55	5	5	2	2	16		0 75
May	30 00	29 75	95	68	5	15	4		7		5 73
June	29 95	29 63	96	72	1	5	18		6		3 16
July	29 92	29 46	95	74	8	5	3	1	14		17 12
August	29 97	29 40	96	74	6	5	6	2	12		19 11
September	30 00	29 49	96	73	4	5		5	17		12 83

The Church Missionary Society has opened a hospital for Chinese in this district, under the care of Dr E G HORDER

*Hankow*

## PSILOSIS OR SPRUE, OR DIARRHŒA

By C BEGG, M.B., CH.M

DURING my nine years' residence in China I have had a good deal of experience in the treatment of disorders of the bowel, from simple diarrhœa to the more serious dysentery, and, no doubt in common with many of my fellow-workers, have frequently come across cases of intractable diarrhœa, now generally known by the name of Sprue

In a former paper\* I have detailed the treatment of dysentery, which I continue to find perfectly satisfactory, never having had occasion to give more than a second dose, the first generally being sufficient. I also called attention to the condition of the tongue, and the value of the clean tongue as a diagnostic between the true and spurious forms of the disease, the latter depending on the presence in the intestine of *ascaris lumbricoides*, and requiring to be treated with *santonin* instead of *ipecacuanha*.

In dealing with cases of simple intractable diarrhœa I at first found that all the drugs I had been in the habit of using failed to cure the condition, and felt bound to confess that the results of treatment were most unsatisfactory. It then struck me that the symptom which I had been in the habit of relying on in the treatment of spurious dysentery was constantly present in these cases, namely, a clean tongue. From that time I was in a position to attack my cases with a definite plan of treatment, expecting to find that I had to deal with but another form of mischief produced and sustained by the presence of the *ascaris lumbricoides* in the digestive tract, and I therefore directed my attention to attempting, by the exhibition of *santonin*, its removal. In not a single case have I ever seen an *ascaris* in the evacuations as a result of the treatment adopted, but all the distressing symptoms of the disease have yielded to its influence, and I feel confident I have been able to cure a disease I had begun to regard formerly as incurable.

Quite recently, through the courtesy of Dr THIN, of London, I received a copy of his pamphlet on "Sprue." It contains a series of six most carefully recorded histories of the very class of cases I had found it so difficult to deal with until I had been led to suspect the parasitic nature of the disease. Sprue was not unknown to me before that date, but this pamphlet demonstrated to me in a conclusive manner the similarity of the disease to which that name is given with the disease which I have been now successfully treating.

For my own part I am quite content to keep to the old nomenclature, and call these cases Diarrhœa. I have as yet seen no necessity to dignify them by a special name, unless it should be found correct and desirable to call them cases of parasitic or microbic diarrhœa. I have found *santonin*, given in the way I shall describe, an infallible remedy, and trust that my fellow-practitioners in China will record their experience of its use.

Dr MANSON's admirable description of this disease is the to-be-expected history of a patient suffering from an unchecked diarrhœa or other intestinal lesion interfering with the proper assimilation of the nourishment taken. Dr VAN DER BURG, in speaking of the etiology of sprue, states that although he believes it to be climatic, yet it does not attack new arrivals, and is less frequent in dark races than among Europeans,—facts, to my mind, pointing strongly to a parasitic or microbic origin. Thus interpreted, it would mean that some time was necessary to elapse after arrival in the country to allow of the introduction and multiplication of the microbe, and the fact, if fact it be, that the dark races are free from it would be accounted for by the microbe or parasite finding a more favourable nidus in the intestinal canal of the European, or, which is more likely, depending on some question of diet. In my own practice I feel certain that it is by no means uncommon among the Chinese.

All observers remark on the clean appearance of the tongue and its participation only in sympathy with the disturbance of the system and after the disease has existed for some time, or in a patient who has yielded very rapidly to the morbid influence.

Dr THIN remarks that many of his patients appear on superficial examination to be perfectly well, others exhibit the appearance of persons fatally stricken by some wasting disease.

I quote *in extenso* Dr THIN's remarks on the symptom diarrhœa. He says "Although diarrhœa is sometimes a prominent feature, indeed occasionally the chief feature, of the disease, it is not invariable. The condition of the bowels may be more accurately described as irregular. When the disease has got hold of the patient he never passes a healthy motion. There are patients who for many years have never had a natural stool, but yet have seldom suffered from what could be called diarrhœa. When diarrhœa is present it is not often scious, the evacuations consisting of a frothy, pale yellow or clay-coloured or brown, more or less pulpy mass. Sometimes the bowels are actually constipated, small, hard, dark-coloured lumps being passed. Mucus is not a characteristic of the stools, although sometimes a considerable number of white mucous flocculi are present. One characteristic of the disease is, in some cases, the presence of very large motions in excessive proportion to the food taken, indicative of a suspension of the absorbing power on the part of the mucous membrane."

A careful consideration of this exhaustive description is most suggestive, and, to my mind, agrees perfectly with my theory as to the causation of this disease. The fault would seem to be after digestion has taken place, and nature has either failed to absorb the food so prepared or, and this is the most likely solution of the difficulty, and the only intelligible one, that some change has taken place in the products of digestion, rendering them unfit for absorption, and they are therefore passed out of the system, and all the symptoms that we notice in our patients are the result of the malnutrition.

Dr THIN continues "It is true that on microscopic examination of the stools, if the patient has been on a mixed diet, muscular fibres and vegetable structures may be seen to pass through the intestine unacted on." But such structures require a powerful digestion to dispose of, and may well appear in the evacuations of such patients. Dr THIN states also that "Although in severe cases the microscope detects epithelial cells amongst the flocculi, still a characteristic feature of the disease is the absence in the motions of any signs of inflammation of the mucous membrane."

In short, it seems to me that there is no evidence to support the statement that in cases of sprue we have to deal with "a serious disease of the mucous membrane of the intestine, which is quite distinct from the chronic diarrhœa of tropical countries." Nor can I agree that "the symptoms indicate an irritable, defenceless condition of the whole mucous membrane from mouth to anus ending eventually in atrophy." As far as I can see, we must except the œsophagus and stomach, and, at best, we only have evidence that nature refuses to absorb the results of the digestive processes in the way she would do were she in perfect working order, while, on the other hand, we have ocular demonstration that the motions are not of a healthy or normal character, and I believe that it is in the motion we must look to find the cause of the disease. That atrophy takes place as a result of this disease unchecked I can quite understand, but I cannot satisfy myself with the current explanation, because, if we accept the pathology given us by observers, we must also allow that the disease only attacks special parts of the tube and leaves other parts healthy. To allow of the digesting of the food taken, we must suppose that the mucous membrane of the stomach, at least, has escaped the morbid process as seen in the mouth and inferred to exist in the intestines, whereas, on many accounts, we might naturally expect the stomach to be the first point of attack, it is certainly the hardest used of any part of the tube, and ought to be the first point to give out.

The theory of a special organism entering and multiplying in the intestinal canal, and by its action rendering the products of digestion inimical to absorption, will satisfactorily account for all the clinical phenomena, and the fact that santonin has been found to cure such cases ought to be a strong proof in support of such a theory. It is an additional fact in support of my theory that the present method

of treatment is to place the patient, after sending him home, for long periods on a special diet. The diseased membrane is still called on to act, but care is taken that only a special substance, milk, is given it to act upon. It may be argued that under milk's bland influence a healthy tone is recovered, the vis medicatrix naturæ coming to the rescue. But it is difficult to understand why, with a proper, wholesome, mixed diet, things should ever have gone wrong, if they are so easily put right, and why, if it be the fact that the structure is diseased, the function should be generally in excess instead of in abeyance—appetite instead of anorexia. On the other hand, if we argue that a mixed diet may contain substances favourable to the growth and well being of our unknown parasite or microbe, and that in the prolonged use of such a substance as milk we supply the system with nourishment but do not at the same time supply that which is necessary for the multiplication of the microbe, and that it is therefore starved out of existence, we will, it seems to me, be very near the truth.

Dr THIN has a most interesting page on the results of cultivation of organisms from the motions in Case I, and those of my readers who may refer to his pamphlet will see at once how favourable to my theory were the results obtained by him. Shortly stated, they are as follows—Out of a number of organisms contained in a minute drop of fluid motion, 13 distinct organisms were isolated, each was developed on gelatine and was perfectly distinctive. Inoculations on flesh gelatine were made once a week. After a little more than two months none of these could be further cultivated. One bacillus behaved in a distinctive manner, and Dr THIN's attention was drawn to the fact that on several occasions the worse the stools were from the point of view of symptoms, the greater was the proportion in which the bacillus was present. Such statements from such a careful observer as Dr THIN shows himself to be have a high value, and, to my mind, point most decidedly to the secret of the disease, especially when read, as it was, after the convictions that had been forced on me by clinical experience.

As a typical example of the class of cases under review, I may relate the following—

A B, aged about 25, several years in China. Has suffered for several years past with more or less constant diarrhoea. Has lost a great deal of flesh, and never knows what it is to feel comfortable in the abdominal region. The slightest irregularity of diet, etc, brought on a sharp exacerbation of the diarrhoea and flatulent pain. Eructations frothy, pale coloured, and bad smelling, never formed, worse in the mornings. Mouth tender. On examination, nothing special to be made out in abdominal region except diminished liver dulness and an irregular percussion note over bowel. Tongue and mucous membrane of mouth generally clean, but raw and irritable looking. Had been under treatment in other parts in China and also at home, where he had gone on account of his health. Has at last come to look on his case as incurable, and to be endured, if possible. Has an anxious, wasted look. He was put on treatment, and after the first series of six powders of santonin felt and considered himself to be perfectly well, was passing natural, healthy, formed motions, had absolute freedom from pain and flatulence, and gaining weight rapidly. Over a year has now passed, and the patient has continued well.

I shall let another patient describe his condition in his own words. He writes me—

My present trouble began about four years ago, I think, and for the last two years was accompanied by dyspepsia in a most aggravated form, pretty well everything was tried but all to no purpose. The last two years I have been gradually losing weight, and got down from a normal weight, six years ago, of about 164 lb to 130 lb in thick clothes. My appetite was always good, but I had often faint feelings, headaches, and vomiting, and constant looseness, often absolute diarrhoea, at times, regular constipation for a day, always followed by greater looseness. I was often screwed up with wind collected inside, and digestion so impaired that my stools smelled so badly that I was positively offensive to myself. During all this I was in a continued state of depression and irritability. The rest you know. My weight on 18th June was 161 lb, and still "excellent," I think.

This patient had had for treatment six powders of santonin, and nothing else. His letter was dated six weeks afterwards. Having given the above as examples of the disease under consideration, I will not multiply such, seeing that one case is, with small differences, exactly like another. I have treated some sent me from other outports, others whose business brought them to Hankow, and have also had cases among my own patients, and in all have had to do with a similar disease of a longer

or shorter duration. In all, the same treatment has had the same result. In one case the patient had been first attacked by the disease in India.

The description of the treatment of one case will do for all. I try, if possible, to place the patient at perfect rest in bed or on couch, and, according to the percussion note over abdomen, commence the treatment with or without a dose of castor oil, guarded with tincture of opium. I also very frequently order large warm water enemata at bedtime. A hot fomentation is often necessary in cases of painful flatulent distension, and generally takes the place of the usual drugs given for the relief of that condition. The diet is principally milk, pure or mixed with lime water, milk, eggs and brandy, beef tea, thickened with corn flour, weak tea, with lots of milk, dry toast or soda biscuit. It is important to take the nourishment frequently in small quantities. The dose of santonin is the usual one of 5 grains for an adult, and is given in a teaspoonful of olive oil, well mixed, and taken the first thing in the morning, or, in some cases, where it is found that the patient suffers considerably from the effects of the drug, I prefer to give it at bedtime. I only give one dose a day, and continue the treatment for six days. I use the yellow crystals, having seemed to find a marked difference in its strength as compared with the white. In Wood's *Therapeutics* it is mentioned that the golden yellow colour is caused by exposure to strong sunlight, and he adds that if the change be a chemical and not a mechanical one, it must be very slight, since chemically the relations are unchanged. However, I can only record my prejudice in favour of the yellow. In the therapeutics of santonin little mention is made of any other property than its parasiticide action on entozoa. It is mentioned that it has been noticed to have a tonic effect in loss of optic nerve power and amaurosis. I have found it to exert a powerful astringent power and prove itself an excellent constipating agent.

I am satisfied that we cannot attribute the good resulting from the above course of treatment to its constipating power alone. Nor can the diet take the credit, for I allow great latitude as soon as the six days' course of treatment is over, bringing my patient rapidly through the stages of digestible food up to the ordinary mixed diet. It is a common thing for a patient suffering from this disease to tell you that he improves just as long as he takes care of his diet, and relapses again at once on any indiscretion, so that the conclusion seems forced on us that santonin alters the pre-existing state of things, and cures the patient by removing the cause. Be that what it may, I do not doubt but that careful examination and cultivation of the evacuations will throw light on the subject. I have found myself unable to undertake this part of the investigation from lack of a properly fitted laboratory, etc. The ground has been well prepared by Dr. THIN and others, but a great deal more requires yet to be done to establish the identity of the microbe. I would add that I have seen a number of cases among the Chinese, but here the difficulties of an outdoor hospital practice come in, and we must speak with caution as to results seen under such circumstances. I have not enough room in hospital to take in all the cases for operation that present themselves, still less cases of diarrhœa, and in dealing with the Chinese medicinally, it is essential to have them in hospital, so that you can regulate their diet, medicine, and, to some extent at least, their hygiene generally. So far, the practical result of the treatment in the out-patient department has established a rule with the native dispenser and the Italian sisters in charge that in all long standing cases of diarrhœa, with its accompaniments, such as feebleness, wasting, œdema of extremities, etc., if the tongue be found to be clean, smooth, extremely red, or, in short, in any condition the reverse of furred and foul, santonin in olive oil is at once ordered, tincture of opium being added if there be any straining or blood in the motions. In a great many cases round worms (*ascaris lumbricoides*) are brought away, and although, no doubt, in a large proportion of the cases they are the sole cause of the mischief, yet my experience with my European patients makes it clear that we cannot blame that parasite in these cases, and I am perfectly convinced that a certain proportion of my hospital cases would be identified as being similar to these.

In conclusion, I would shortly state my position as follows — I do not believe that the disease sprue exists. It is defined as a disease of and originating in the mucous membrane of the intestinal tract,

and the symptoms seen are charged to its account. I believe we are dealing with an alteration in the products of digestion induced by the agency of an organism, that by its action the contents of the bowel are rendered unfit for absorption, and all clinical phenomena are but the result. The organism, no doubt, produces irritation of the mucous membrane by its presence and by the changed character of the motions. The state of the month and general condition of the patient are simply the to be expected result of such interference with so important a function, and, in detail, are but what is seen every day in patients suffering from other diseases including or causing similar functional derangements. The drug santonin I believe to be inimical to the life of the organism, and as the result of its destruction nature recasserts her sway.

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CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31<sup>ST</sup> MARCH 1888.

35th Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,  
AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON P S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1890.

[Price \$1]





## INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death.

b—Diseases prevalent at

c—General type of disease, peculiarities and complications encountered, special treatment demanded

d—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

e—Peculiar diseases, especially leprosy

f—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3 —Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officers at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Mr. \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

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I am, etc,

Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Takow,*  
*Kvukiang, Amoy,*  
*Chinkiang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, *21st December 1889*

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Shanghai for the half-year ended 31st March 1888, pp 1-14,

Report on the Health of Chefoo for the year ended 31st December 1887, pp 15-17,

Report on the Health of Chinkiang, pp 18-19,

Report on the Health of Kiukiang, pp 20-26,

Report on the Health of Canton, pp 27-28, each of these referring to the year ended  
31st March 1888

Clinical Studies of disease as observed in China, pp 29-39

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,

*PEKING*

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The Contributors to this Volume are —

R A JAMIESON, M A, M D, M R C P	Shanghai
W A HENDERSON, L R C S Ed, L R C P Ed.	Chefoo
R G WHITE, M R C S, L S A	Chinkiang
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J F. WALES, B A, M D, C H M .. .	Canton

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# DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 31st March 1888

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the Six Months ended 31st March 1888 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  $8^{\text{h}} 5^{\text{m}} 45^{\text{s}}$  \*

DATE		Barometer at 32° F	THERMOMETER		Amount of Vapour in the Air per Cubic Foot	Hu midity, 0-100	Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	No of Days Rain during Month
			Diurnal Mean Tempera ture in Shade	Extreme Tempera ture in Shade								
1887		Inch	° F	° F	Grams			Miles		Inch	Inch	
Oct	{ Max	30 358	71 2 (12)	82 0 (9)	6 943 (18)	95 0 (31)	14 0	24 5 (2)	N 12° 12 E	3 647	0 615	3
	{ Mean	30 105	64 9		5 045	75 2	10 4	11 78				
	{ Min	29 784	53 2 (26)	41 5 (28)	2 601 (26)	60 0 (22)	7 5	0 6 (9)				
	{ Range	0 574	18 0	40 5								
Nov	{ Max	30 500 (30)	61 2 (10)	72 3 (7)	4 786 (5)	87 0 (9)	14 0	32 2 (29)	N 5° 13 W	3 139	0 374	2
	{ Mean	30 235	53 8		3 262	71 0	9 8	11 05				
	{ Min	30 032 (28)	45 1 (30)	32 9 (25)	2 130 (27)	52 0 (24)	5 3	0 4 (12)				
	{ Range	0 468	16 1	39 4								
Dec	{ Max	30 563 (30)	54 0 (10)	66 2 (10)	3 808 (10)	86 0 (1)	13 7	46 7 (30)	N 47° 53 W	3 879	0 142	5
	{ Mean	30 287	43 8		2 079	63 8	10 5	12 85				
	{ Min	29 984 (29)	25 0 (30)	17 8 (30)	0 310 (31)	40 0 (30)	7 5	0 6 (24)				
	{ Range	0 579	29 0	48 4								
1888												
Jan	{ Max	30 546 (25)	54 3 (9)	68 4 (2)	3 197 (17)	99 0 (28)	17 5	31 1 (4)	N 4° 11 E	2 820	2 741	10
	{ Mean	30 303	40 3		2 110	73 6	12 9	14 60				
	{ Min	29 876 (16)	29 3 (1)	17 2 (1)	0 617 (1)	43 0 (5)	7 3	0 8 (21)				
	{ Range	0 670	25 0	51 2								
Feb	{ Max	30 590 (1)	48 6 (28)	63 1 (28)	3 556 (28)	99 0 (13)	16 7	34 7 (25)	N 5° 13 W	1 741	3 695	8
	{ Mean	30 303	37 8		1 877	79 9	13 2	14 40				
	{ Min	30 090 (16)	28 2 (8)	20 1 (9)	0 706 (8)	59 0 (8)	8 0	0 0 (4)				
	{ Range	0 500	20 4	43 0								
March	{ Max	30 480 (6)	60 3 (24)	72 3 (11)	5 181 (24)	99 0 (13)	17 7	35 6 (7)	N 47° 53 W	2 535	4 568	12
	{ Mean	30 131	49 6		3 456	80 6	13 1	14 72				
	{ Min	29 994 (17)	39 2 (4)	30 0 (5)	1 629 (20)	63 0 (19)	9 7	1 0 (30)				
	{ Range	0 486	21 1	42 3								

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich

NOTE —The figures in parentheses indicate the days on which the observations to which they are appended were made, under the headings "Diurnal Mean Temperature in Shade" and "Humidity" they indicate the days on which the mean readings were respectively highest and lowest. The monthly barometric means are deduced from four daily observations recorded in the local newspapers. The monthly thermometric means are deduced from the daily maximum and minimum, half the sum of which is taken as the mean for each day. The mean amount of vapour in the air per cubic foot is deduced from the mean humidity and the thermometric mean, the maxima and minima given in the same column must be regarded as very close approximations. The mean humidity is deduced from two daily observations made respectively at 4 A.M. and 4 P.M., the mean of the daily means being taken as the monthly mean. The mean direction of the wind is deduced from two daily observations made at 4 A.M. and 4 P.M. respectively.

For the abstract on the previous page I am indebted to the Rev. Père CHEVALIER, S J, Director of the Zikawei Observatory

The winter was dry with occasional falls of snow in January, February and March. At Zikawei the lowest temperature recorded was  $17^{\circ} 2$  F, on the night of the 1st January, and the highest  $82^{\circ}$  F, on the 9th October. In the settlement the lowest temperature was  $20^{\circ}$  F, on the night of the 30th–31st December, and the highest  $87^{\circ}$  F, on the 10th October. The mercury first fell to freezing point on the night of the 13th–14th December, sinking next night to  $24^{\circ}$  F.

As regards temperature the winter was one of fully average severity, as the minima for the months show. The minimum and maximum temperatures respectively for October were  $46^{\circ}$  on the 27th, and  $87^{\circ}$  on the 10th, for November,  $39^{\circ}$  on the 25th, and  $77^{\circ}$  on the 15th, for December,  $20^{\circ}$  on the 31st, and  $65^{\circ}$  on the 7th, for January,  $21^{\circ}$  on the 1st, and  $66^{\circ}$  on the 9th, for February,  $25^{\circ}$  on the 9th, and  $59^{\circ}$  on the 28th, for March,  $33^{\circ}$  on the 4th, and  $69^{\circ}$  on the 23rd. The weather, however, was genial and sunny until the close of the year, and, leaving one snowy day out of account, spring was fully established by the first week in March. After the 24th September the night temperature never touched  $70^{\circ}$ , which may be taken as the limit outside of which thoroughly refreshing sleep is hardly possible.

If the death rate be accepted as a tolerably accurate gauge of the healthiness of the foreign community, the advent of cool weather will be seen to have caused a very distinct elevation of the level of health. Thus (excluding cholera) the mortality fell from 16 in September to 9 in October. Anticipating here the discussion of the death return, it may be noted as regards climatic disease that the deaths from

Dysentery and diarrhoea, hepatic disease, and enteric and remittent fevers numbered 11 in this half-year as against 22 in the summer half-year, and that in February and March there were no deaths from any disease that can be classed as climatic.

Apart from alcoholism, venereal diseases and one or two abortive or accidental attempts at self-poisoning, which may be held to represent pathological luxuries, neglecting also the affections special to infancy, the diseases chiefly prevalent among foreigners, judging by my own diary, were catarrhal affections of the respiratory and alimentary tracts, conjunctivitis, neuralgia and muscular rheumatism, hepatic congestion mostly of ephemeral character, boils and other skin diseases, enteric and malarial fevers, parotitis, small-pox, scarlet fever and varicella.

Malarial fevers were of frequent occurrence. Thus I find records of 46 cases of intermittent fever treated in private equally divided between the first and second quarters. There were 6 cases of enteric fever, of which two were children of 5 and 8 years respectively, both of fully average severity. It would be interesting to ascertain the ratio of enteric fever to malarial through a series of years, but this I have not done. Scarlet fever made its appearance in December, and 6 cases occurred in my practice in December and January. 1 fatal case, in an infant, was reported in March. Parotitis and varicella were almost epidemic among children, and as an exceptional circumstance I note 3 cases of small-pox, out of which two adults. All 3 cases were of benign character.

*Sequelæ of Intermittent Fever*—1 One case of facial paralysis after neglected tertian fever was observed in a previously healthy Chinese 27 years old. There was nothing to suggest intra-cranial lesion either functional or structural except the limitation of the paralysis to the lower part of the right side of the face and a hardly perceptible drooping of the right shoulder. The tongue was projected very slightly towards the right side. There was no muscular atrophy, although the condition had lasted for three

months when advice was sought. The paralysis declared itself one month after the onset of the fever, and immediately on its appearance the precedent symptoms vanished. LANDOUZY (*Des Paralysies dans les maladies aiguës*) does not mention facial paralysis as a sequel of intermittent fever. He cites however several cases of aphasia, and implies that all cases of persistent sequential paralysis depend on "pernicious" attacks. Here, however, the fever, judging by the patient's account, was of the simplest character. It lasted for a month simply because it was inefficiently treated by native practitioners. Arsenic was recommended, but the patient was immediately lost sight of.

2. A case of true "ague-cake" was also observed in a Chinese the subject of profound malarial cachexia. The spleen extended to the antero-posterior mesial plane of the abdomen, and encroached slightly on the hypogastric region. As contrasted with the great frequency of malarial splenic affections in India, this condition is, within my experience, rare among the natives in this part of China, who however suffer severely from all forms of malarial fever.

Beyond the daily routine of scavenging little or nothing in the shape of sanitary work has been done by the Councils during the half-year.

The following Table of Burials in the Foreign Cemetery has been compiled from the municipal registers.

BURIAL RETURN of FOREIGNERS for the Half-year ended 31st March 1888 \*

CAUSE OF DEATH	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	TOTAL
Small pox			1†	1	1‡		3
Scarlet fever						1	1
Enteric fever		1†	1				2
Remittent fever				1‡			1
Cholera	1 3†						4
Alcoholism		1					1
Bright's disease			1†	1‡		1†	3
Pernicious anæmia						f 1‡	1
Dysentery	1 1†						2
Phthisis	1†					1	2
General paralysis	1	2					3
Apoplexy			1‡			1‡	2
Convulsions				1			1
Cerebral effusion					1		1
Heart disease		1	1			1	3
Aneurism			1	1 1‡			3
Bronchitis	1				f 1‡		2
Pneumonia				f 1			1
Asthma					f 1‡		1
Atelectasis		f 1				f 1	2
Stomatitis			f 1‡				1
Gastro enteritis						2	2
Diarrhœa	f 1						1
Ulceration of colon						1†	1
Cirrhosis of liver	1†	1	1 1†				4
Hepatic abscess				1			1
Cancer of neck						1	1
" kidney					f 1		1
" uterus				f 1			1
Contusion of chest	1†						1
Laceration of brain						1	1
Drowned	1†				1†		2
Suicide				f 1			1
Uncertified				1†			1
TOTAL	13	7	9	11	6	12	58

\* Not including deaths (if any) among the Catholic religious bodies and the Japanese, exclusive also of premature and still births.

† Non resident.

‡ Asiatic or Eurasian.

|| Infant

f Female



A glance at the figures opposite the Causes of Death which are printed in italics will give an idea of the gravity of the incidence of climatic disease in the different months

Proceeding now to analyse this table, we find that of the total of 58 deaths recorded, 5 were due to accident (4) and suicide (1). There remain 53 deaths attributable to disease. There were 10 deaths among children, distributed as follows—8 of European birth (5 males and 3 females), children of residents, and 2 non-Europeans (1 male and 1 female). The age of the oldest child was 3 years, death was due to scarlet fever. The age of the youngest was 24 hours, atelectasis of the lungs being the cause of death. The foreign adult mortality from disease was therefore 43 (37 males and 6 females), or, excluding 8 adults of Asiatic birth (5 males and 3 females), the European adult mortality was 35 (32 males and 3 females). Of these, 13 (all males) were non-residents. The mortality among resident European adults was therefore 22 (19 males and 3 females).

#### I—CAUSES OF DEATH FROM DISEASE among RESIDENT EUROPEAN ADULTS

Small-pox	1	General paralysis	3
Enteric fever	1	Cerebral effusion	1
Cholera	1	Cardiac and vascular disease	5
Alcoholism	1	Pneumonia	1 (female)
Dysentery and diarrhoea	2 (1 female)	Hepatic disease	3
Phthisis	1	Cancer	2 (1 female)

19 males and 3 females, against 15 males and 4 females for the last previous corresponding period

#### II—CAUSES OF DEATH FROM DISEASE among the CHILDREN of RESIDENT EUROPEANS

Scarlet fever	1	Atelectasis of lungs	2 (females)
Convulsions	1	Gastro enteritis	2
Bronchitis	1	Cancer of kidney	1 (female)

5 males and 3 females, the numbers for the winter six months of 1886–87 having been 3 males and 5 females

#### III—CAUSES OF DEATH FROM DISEASE among NON-RESIDENT EUROPEAN ADULTS

Small pox	1	Phthisis	1
Enteric fever	1	Ulceration of colon	1
Cholera	3	Curhosis of liver	2
Bright's disease	2	Uncertified	1
Dysentery	1		

13, all males, against 16 males during the corresponding period of 1886–87

#### IV—CAUSES OF DEATH FROM DISEASE among NON-EUROPEAN ADULT FOREIGNERS

Remittent fever	1	Aneurism	1
Bright's disease	1	Bronchitis	1 (female)
Pernicious anæmia	1 (female)	Asthma	1 ( „ )
Apoplexy	2		

5 males and 3 females, against 2 males and 1 female in the last corresponding period

#### V—CAUSES OF DEATH FROM DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Stomatitis	1 (female)	Small-pox	1
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1 male and 1 female, as against 1 male and 1 female during the previous corresponding period

The fatal case of small-pox in February occurred in an unvaccinated Eurasian child aged  $2\frac{1}{2}$  years. The two cases of gastro-enteritis occurred in twins 5 weeks old, who died within a couple of days of one another. The death from laceration of the brain occurred in a boy about 12 years old, who fell over the banisters of a staircase from the second floor of a lofty building, striking a flagged pavement below. A rare instance of malignant disease of the kidney in a female infant aged 17 months is deserving of notice.

The total number of deaths from cholera during the year 1887 was 20, viz., 4 European adult resident males, 1 European adult resident female, 1 European resident child, 11 European non-resident adult males, 2 non-European adult females and 1 non-European child. Deaths from cholera occurred only in August (3), September (13) and October (4). Of 28 admissions to the General Hospital, 18 died, a mortality of 64.3 per cent.

The only important contribution to cholera literature during 1887 was M. VON PETTENKOFER'S *Zum gegenwärtigen Stand der Cholerafrage*, and its value depends on the clearness and fairness wherewith the rival doctrines held regarding the origin and diffusion of the disease are set forth. The origin of cholera out of non-specific conditions affecting the individual and his environment is taught by Dr JAS. CUNNINGHAM. The specific character of the cholera germ and the spread of the disease by the transmission of that germ from one person to another find their most powerful advocate in Dr ROBERT KOCH. The potentially specific character of the germ in relation to special local conditions mainly telluric, in the absence of which the germ is inoperative, is the eclectic doctrine of which VON PETTENKOFER himself is the acknowledged representative.

VON PETTENKOFER admits that KOCH'S comma bacillus may be the germ, though, after a review of the competing claims of many other micro-organisms whose virtues (or vices) as cholera producers and propagators have been extolled by various investigators whose names they bear, he keeps his final judgment in suspense, preferring still to denote the unknown quantity by the symbol  $x$ \*. He temporarily closes the discussion with the words —

Let all this be as it may, it is at least evident that bacteriologists must still labour and search for many a long day before they come to a common understanding†.

But whatever may be the germ its identification is of no practical value when once cholera has started in a given place. Even the isolation of patients must necessarily be inoperative in the presence of an infinitesimal organism which can make its way through invisible chinks. The only unquestionable safety lies in flight, which must be to some locality known by experience to be unfavourable to cholera propagation. To take ship and be off to sea is for example an excellent security. As regards danger to the place selected, VON PETTENKOFER admits that a few sporadic cases may arise, but he insists that an epidemic is impossible. All obvious personal precautions such as bathing, complete change of attire, etc., must of course be taken by the fugitives with a view to diminishing the chance of producing even these sporadic attacks. The author cites a multitude of striking examples in support of his teaching. Practically it amounts to this, that as we are powerless against the dissemination of the germ, all our efforts should be directed towards making the soil upon which it is to fall unpropitious to it. So far as we know, every condition that tends to lower the vital resistance of individuals or groups of individuals is favourable to the multiplication and dissemination of the hypothetical germ, and therefore prophylaxis sums itself up in personal and public sanitation.

\* See *Customs Medical Reports*, xxv, 33.

† Dem sei nun, wie ihm wolle, jedenfalls sieht man, dass die Bacteriologen noch lange zu arbeiten und zu forschen haben, bis sie einig werden. S. 571.

Unfortunately for the hopes of those who once anticipated that the introduction of antiseptic substances into the alimentary canal or blood might prove noxious to the bacilli of cholera, it has been established by SCHULZ\* that weak solutions of arsenious, chromic, formic or salicylic acids, corrosive sublimate, iodine or biiodine increase the activity of yeast cells. This is of course no absolute reason why the same substances or some of them, sufficiently attenuated to ensure their harmlessness to the human organism, should not prove destructive to other vegetable cells, but it proves how unreliable purely theoretical inferences are when vital phenomena are in question †. It is certain that an antiseptic substance, no matter how powerful, taken at random, has as many chances of failing as of succeeding when opposed to a parasite the peculiarities of which are unknown. Thus the anthrax bacillus is far more sensitive to the action of corrosive sublimate than is its probable homogen the bacillus subtilis, or common hay bacillus, which resists that action very successfully. Nor can the results of experiment on the lower animals be considered in any way reliable as premisses upon which to found deductions applicable to the human species, when we find that the reactions respectively of two rodents so closely allied as the rabbit and the guinea-pig to the same infective micro-organism differ widely one from the other. For instance, inoculation with the pyocyanic bacillus, which produces general infection with a rapidly fatal result in the rabbit, produces a sluggish local lesion in the guinea-pig without, except in the rarest cases, any general infection.

At all events, the germ or germs of cholera cannot possess the least importance from the point of view of the treatment of individual cases until their natural history, including all their susceptibilities to change of locality and to alterations, real or presumed, in the tissues which shelter them and the vital fluids which bathe them, as well as all their transformations, is completely worked out, or a lucky chance reveals some means whereby without injury to the human organism the intestine can be made an unsuitable nidus for them. And it is further evident that even this knowledge would be of no avail unless it could be applied before the secretion of the non-particulate poison which, absorbed into the blood, alters its character and, probably by some action on the vaso-motor system, constricts the pulmonary arterial radicles and empties the arterial side of the greater circulation. How soon after the germs reach the intestine this poison is secreted, how soon absorption begins, are alike unknown, but it is at least certain that the secretion commences before the presence of the germs could be recognised. What the poison itself is, it is equally impossible to say. Its action resembles that of muscarin, and, on the theory that something identical with this alkaloid or closely resembling it was the toxic element, I have treated four cases of cholera with atropin, without however the slightest good effect. That the micro-organisms, quoad foreign intruders, are not the cause of the symptoms and fatal course of the disease is certainly true. They are never found in the circulating blood. Everything indicates that they are merely instrumental, that in common with other pathogenic organisms they possess the power of dissociating living or dead albumen, forming soluble organic toxic products, and there is good reason to believe that at a certain stage of their development the poison they produce proves fatal to themselves.

\* PFUGER'S *Archiv*, xlii

† See *Customs Medical Reports*, xxvii, 36, for a brief description of ROLLER'S investigations in this direction.

Bacteriology therefore does not promise to contribute much, if anything, to the treatment of cholera, though it will in all probability be fruitful in suggesting general measures of prophylaxis. The curious instance of the micro-organism of symptomatic anthrax which rabbits resist unless the perfectly innocuous micrococcus prodigiosus is inoculated at the same time, when it kills with certainty, is exactly parallel to that of the ingestion of the separately harmless amygdalin and emulsin, which administered simultaneously to an animal kill it by the formation of hydrocyanic acid. On the other hand, HUEPPE finds that inoculation with the inert "earth bacillus" renders mice refractory to infection with anthrax. In the vast majority of cases it is not to the biology of pathogenic germs but to the chemistry of the substances which they produce that we must look for some possible light on treatment.

The Chinese have many specifics for cholera, all equally inert. Patients brought moribund into hospital frequently show that a little of everything has been tried on them—scraping of the skin of the neck, moxa to the chest and limbs, acupuncture here and there. The native internal treatment is unintentionally evacuant, as it consists for the most part, in Shanghai at least, in the administration of warm bulky infusions and decoctions of nauseous herbs. These are rejected as soon as swallowed. All native statements about disease are perfectly unreliable, but there cannot be any doubt that the local mortality from cholera every year is extremely heavy. A year or two ago all the dead-walls in the settlement and suburbs were covered during summer and autumn with posters recommending a nostrum in terms somewhat more modest than those usually employed in such cases. Subjoined is a translation of this advertisement, for which I am indebted to Mr H. A. GILES —

This elixir is specially adapted for severe choleraic attacks, restoring the patient to life when at the very last extremity. Each bottle contains two doses, which should be poured out into a spoon, mixed with a pinch of sugar, placed upon the tongue and swallowed with the aid of some warm water.

1 The "midnight-noon" cholera is the worst, *i.e.*, the cholera which begins at midnight and ends in death at noon, or *vice versa*. It is sometimes unaccompanied by the usual symptoms of vomiting and purging. But whenever there is a feeling of great oppression at the pit of the stomach, accompanied by gasping for breath, a very low pulse, sunken eyes and sweating, quickly administer a double dose of the medicine and apply hot things to the four extremities. If taken in time the patient may be saved. A delay of four hours would make recovery very difficult.

2 Vomiting and purging, coldness and numbness, cramps and drawing up the feet may all be cured by one dose as above.

3 The severest bowel pains may also be cured by one dose.

4 Where there has been a succession of watery stools, 10 to 20 in number, one dose will stop the purging. In dysentery this medicine should not be given.

5 If, in cases of vomiting and purging, the medicine is brought up, the contents of a bottle should be divided into three or four doses and gradually administered. Thus, the result will be successful.

6 Given to a patient who has recently got a chill, the result is most beneficial, as has often been proved, but if there has been an alternation of hot and cold fits for three days past, although the symptoms may seem to be choleric, this medicine must not be given.

7 Half doses may be given with advantage to children with quick convulsions (?), but in cases of slow convulsions (?) it should not be given.

Care must be taken not to confound cases of heat apoplexy, arising from exposure to the sun over heavy work, or in travellers, with cholera. This medicine would in such cases cause instant death. These cases do not occur in the autumn, but in all cases great caution is necessary.

[The above can be supplied at the rate of 40 bottles for \$1.]

There are one or two noteworthy points in this paper, especially the recognition of the two forms of cholera—that which kills by almost immediate collapse without any natural effort towards the evacuation of the *materies morbi*, and that which declares itself more noisily by urgent purging and vomiting. The so-called “choleraic diarrhoea” or “cholera” of cholera seasons, which is really cholera without collapse, is likewise indicated, as also is the choleraform invasion of “pernicious” intermittent fever. And finally, allusion is made to the possibility of confounding certain forms of heat apoplexy with cholera, which argues a far acuter observation of the resemblances and differences of disease than we should expect from Chinese practitioners.

The drug thus recommended to the public is the essential oil of peppermint.

During the Paris epidemic of typhoid fever in 1882 it was established by Professor BROUARDEL as the result of a careful statistical inquiry that the prevalence of the disease in a given district was directly proportional to the density and uncleanness of the population.\* This question of overcrowding, with its necessary correlatives of filth and disease, is every year assuming more importance in Shanghai, though no public notice whatsoever is taken of it. A considerable amount of money is constantly being wasted on disinfectants by the Municipal Councils, upon whom it has not yet dawned that watering the streets with an attenuated solution of carbolic acid, pouring the same substance into the drains, and rendering the neighbourhood of latrines more intolerable than it naturally is by flushing them with malodorous chemicals, are all merely laborious and extravagant devices for procuring the appearance of doing something. It cannot be too distinctly affirmed and understood that cleanliness, and cleanliness only, is convertible with disinfection, and that where dense overcrowding exists special means should be adopted to ensure cleanliness. The main streets of the settlements are with some exceptions kept reasonably clean, but the condition of the side streets and alleys is deplorable. In my Report for the summer half-year of 1882,† and again at the ratepayers' meeting held on the 13th February 1885,‡ special attention was drawn to the dangers arising from the uncontrolled invasion of the settlements by hordes of people of incredibly filthy habits. The description which I gave three years ago of the detestable condition of the settlements provoked, as the official report of the meeting shows, a considerable amount of somewhat misplaced hilarity. In fact, the matter is altogether lacking in humorous elements, and urgent as it was then it is still more urgent now. It is not because the question is neglected by the Councils and laughed at by the ratepayers, nor because there has as yet been no devastating epidemic referrible to the horribly insanitary condition of the less obvious parts of the settlements, that we shall not sooner or later with certainty discover that we are developing in our midst all the conditions essential to epidemics or favourable to them. Nobody can deny the difficulty, perhaps even the impossibility, of limiting overcrowding, or the

\* Académie de Médecine séance du 14 novembre 1882

‡ *Debates, Proceedings and Votes*, page 28

† *Customs Medical Reports*, xxiv, 42

difficulty of securing the cleanliness of back streets and native dwellings. But this latter is not impossible. For three years the Sanitary Board in Hongkong has insisted on the thorough cleansing of native tenements at certain periods, and the Colonial Surgeon reports a contemporaneous decrease of more than 100 per cent in the death rate from diseases reasonably attributed to an insanitary environment. What has been attained in Hongkong is certainly not unattainable in Shanghai. But should any attempt be ever seriously made to do here what has been successfully accomplished in Hongkong, the difficulty will arise out of competing interests, out of lack of capacity to realise a danger which is not visibly menacing, and out of the lack of a government not too ideally democratic to be strong.

In 1885 a Special Committee of the Board of Supervisors of San Francisco was appointed to inquire into the condition of the Chinese quarter of that city and draw up a report for submission to the General Board. The following extracts from that report will serve to illustrate and emphasize the remarks made in the preceding paragraph —

Your Committee were impressed with the fact that the general aspect of the streets and habitations was filthy in the extreme, and so long as they remained in that condition so long would they stand as a constant menace, as a slumbering pest, likely at any time to generate and spread disease. Your Committee are still of the opinion that it constitutes a continued source of danger of this character, and probably always will so long as it is inhabited by people of the Mongolian race. They are glad to be able to say that the presence and operation of the surveyors have had a most salutary effect in inducing a general cleaning-up where filth was the rule before. Something has been gained in the demonstration of the fact that by constant watching and close supervision the residents of Chinatown can be made to adopt somewhat better habits and become a lesser source of danger to the public health.\*

The population to be dealt with was estimated as numbering at least 30,360.

Your Committee have found, both from their own individual observations and from the reports of their surveyors, that it is almost the universal custom among the Chinese to herd together as compactly as possible, both as regards living and sleeping rooms and sleeping accommodation. It is almost an invariable rule that every bunk in Chinatown is occupied by two persons. Not only is this true, but in very many instances these bunks are again occupied by relays in the day-time, so that there is no hour, night or day, when there are not thousands of Chinamen sleeping, under the effects of opium or otherwise, in the bunks which we have found there.†

Through inquiries which I have had made by a reliable Chinese teacher I have evidence that, *mutatis mutandis*, this description applies to hundreds of common lodging-houses in various parts of these settlements.

With commendable impartiality the Special Committee record a fact which manipulated by ignorant persons might weaken much of the effect of their report —

In a sanitary point of view Chinatown presents a singular anomaly. With the habits, manners, customs and whole economy of life violating every accepted rule of hygiene, with open cesspools, exhalations from water-closets, sinks, urinals and sewers tainting the atmosphere with noxious vapours and stifling odours, with people herded and packed in damp cellars, it is not to be denied that, as a whole, the general health of this locality compares more than favourably with other sections of the city which are surrounded by far more favourable conditions.‡

\* *Report of the Special Committee*, page 4.

† *Report*, page 6.

‡ *Report*, page 17.

This conclusion must be deduced from the death rate. But the well-recognised impossibility of obtaining reliable statistics from Chinese makes it probable that the paradox is fully to be explained by designed falsification of returns. In any case the Committee are not blinded to the fact that this real or supposed immunity from fatal disease must be merely temporary, and whether temporary or not does not diminish the danger arising from the prevalence of grossly insanitary conditions in the midst of a European community. The report then carries its readers into Chinatown and unfolds its horrors by a long series of particular instances. Horrors that, like the second gulf of the eighth circle of DANTE'S *Inferno*,

Held sharp combat with the sight and smell,\*

dens like the place revealed by the archangel to Adam,

Sad, noisome, dark,

A lazar-house it seemed, wherein were laid  
Numbers of all disers'd, all maladies  
Of ghastly spasm, or racking torture, quilms  
Of heart-sick agony, all feverous kinds,  
Convulsions, epilepsies, fierce catarrhs,  
Intestine stone, and ulcer, colick pangs,  
Demoniac phrensy, moping melancholy  
And moon struck madness, pining atrophy,

Diopsies and asthmas, and joint-racking rheums

And over them triumphant Death his dart  
Shook, but delay'd to strike †

The Medical Director of the United States Navy when counselling means whereby to combat the existing condition of affairs makes the following sensible and practical remarks —

Where there are fresh air and dryness and cleanliness there can be no cholera, and where there are not it will come in spite of proclamations and perfunctory quarantines. Fumigations and disinfections which mask putrescence and substitute medicinal smells for sickening stenches are as ridiculous as the noise of gongs and tom-toms and exploding fire crackers and gongs, by which the Chinaman hopes to frighten the devils who desolate his home and country, and worse than useless from the false sense of security which they give ‡

Public sanitation in Shanghai can never become effectual until it becomes popular, and never popular until it is reduced to its simplest and most intelligible terms. The lavish use of water for flushing and of lime for washing is all that is necessary, and it cannot be pretended that this reduction of sanitary requirements to lime and water does not realise all that can be desired in the way of simplicity. If the Councils would devote the money now annually wasted on chemical disinfectants to increasing their expenditure on water, so that not only the main and side streets, but every alley, courtyard and private yard in the Chinese quarters should be

\* Che con gli occhi e col naso facea zuffa *Inferno*, canto xviii.

† *Paradise Lost*, xi, 478-492

‡ *Report*, page 18

plentifully flushed out at stated intervals,\* and if further they made the lime-washing of every Chinese tenement compulsory at certain periods, very much of the existing danger from overcrowding would disappear. If it be objected that the Councils have not the necessary power to do this and are not likely to obtain it, the same end could easily be secured by owners of native house-property if they combined to make the letting of their houses contingent on submission to such periodical cleansing. Whether these owners can be educated up to the point at which the needfulness of some comprehensive system of sanitation becomes evident is another question. In other words, the doubtful part of the business is whether a simple and effectual plan of sanitation can be made popular by its intelligibility.

It is worth considering by the public whether it is creditable that among an intelligent and cultivated community whose government is largely based on the voluntary principle there should be none or next to none of those sanitary measures adopted which experience in European and American cities has proved to be so needful that they are made compulsory by law. In New York, for example, the foundation for practical work is obtained by the enactment that everything which the Board of Health declares to be a nuisance is thereby constituted a nuisance in the eyes of the law. The general staff of the health bureau is divided into seven departments, of which one is charged with the abatement of non-structural and casual nuisances such as filthy tenements, filthy yards, stables or areas, dangerous or filthy vacant lots, choked street or yard gullies, etc., a second has power compulsorily to remove to hospital all cases of small-pox and typhus occurring within the city, while another takes cognizance of the plumbing, drainage and ventilation of all new buildings. These are the only sections of the municipal sanitary work accomplished there which are of obvious applicability here, and they suffice to show the direction in which we ought to move if our lack of public sanitary legislation is not to remain a scandal. The difficulty lies in the competition of private interests, and in the carelessness about measures which it is too much trouble to understand and without which matters have hitherto gone tolerably well. But the relation of foreigners to Shanghai is no longer the fugitive one which existed a quarter of a century ago. The development of family life makes the postponement of intelligent sanitation less excusable than it has been in past years.

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The question of quarantine, or rather of inspection, of vessels arriving in Shanghai from places infected with certain specified diseases has on several occasions been discussed in these Reports†. The existing "Sanitary Regulations for the Port of Shanghai" were reprinted in the 7th volume‡. These, however, were in practice found defective, and the following draft Regulations were submitted in 1884 to the Inspector General of Customs, the Taot'ai and Commissioner of Customs in Shanghai and the local foreign Consular body. By all these officials they were approved, but they failed to receive the sanction of the foreign Ministers at Peking, the

\* In the 4th century B.C. the system of profuse flushing of streets was in operation in the city of Jerusalem (TIMOCRATAS), and the ruins of Pompeii attest that the same simple and effectual device was adopted there 2,000 years ago.

† Especially Customs *Medical Reports*, vii, 38, and xxvi, 15.

‡ Page 38.



opposition to them originating with Sir HARRY PARKES, as he himself informed me, on the ground that their application might lead to delay in steamer work. The rapid steam communication in these days between distant parts of the world is extremely favourable to the introduction of exotic diseases. A curious instance illustrating this was observed a few years ago in Paris. The living larva of a South American insect was found in a tumour removed from the skin of a woman who had recently arrived from Brazil\*. No doubt the micro-organisms of disease are even more capable of resisting such changes of environment as befel this larva without injuring its vitality. Hence the elaboration of Article II in the subjoined draft.

### DRAFT SANITARY REGULATIONS FOR THE PORT OF SHANGHAI

PREAMBLE—1 The "Sanitary Regulations for the Port of Shanghai" (July 1874) are hereby cancelled.

2 Throughout the following Regulations the word "vessel" shall be held to mean merchant vessel of foreign build, or *loichu*, with the boat, boats, sampan, or sampans belonging to the same, the term "disinfection" shall be held to include the destruction of infected articles which may be incapable of disinfection or not worth disinfecting, the term "master" shall be held to mean the officer or person for the time being in command or charge of a vessel, and the term "Medical Inspector" shall be held to include any legally qualified medical practitioner deputed in case of need by the Medical Inspector and approved by the Commissioner of Customs.

I—1 When disease of an infectious character is known to prevail at any place it shall rest with the Superintendent of Customs and Board of Treaty Consuls to declare such place infected. The Superintendent will inform the Commissioner of Customs when this declaration is made, and the Commissioner will give public notice thereof and will provide for the detention and medical inspection of vessels arriving at Shanghai from that place.

2 The Commissioner of Customs will as soon as practicable notify the Commissioner [or other local authority in the case of foreign ports] at the port declared infected that vessels from that port are subject to detention on arrival at an imaginary line drawn N N W across the river from the mouth of the Yang ching Creek.

II—1 Every vessel bound to Shanghai (i) direct from a place declared infected, or (ii) arriving at Woosung within 10 days of having left such place (whether she shall have called at an intermediate port or not), or (iii) within 10 days of having been in communication with a vessel on board of which there may have been at the time of communication a case of any of the under-mentioned diseases or the body of any person dead of any of those diseases, or which has left an infected port within 10 days of the date of such communication, or having on board (iv) a case of cholera, small-pox, typhus fever, plague or yellow fever, or (v) a case that may reasonably be suspected to be one or other of these diseases, or (vi) the dead body of a person who has been so affected or might reasonably be suspected of having been so affected, or (vii) on board of which a case of any of the above-mentioned diseases may have been observed at any stage of the disease within 10 days of reaching Woosung—shall, on passing the Woosung Spit Buoy and while coming up the river, fly a yellow flag at the fore.

2 The masters of all such vessels shall afford every possible facility to the Boarding Officer at Woosung, whose duty it will be to communicate with them and to give a copy of these Regulations to each master.

\* *Semaine Médicale*, 1883, page 127

III —The Commissioner of Customs will from time to time, by despatch, appoint a Customs Medical Officer to carry out the inspection of such vessels and to discharge such other duties as may arise out of the application of these Regulations. The officer so appointed shall for the time being be the "Medical Inspector." Public notice will be given of his appointment.

IV —On reaching the imaginary line described in Article I, paragraph 2, of these Regulations, such vessels shall anchor and await the visit of the Medical Inspector.

V —On being informed that a vessel is coming up with the yellow flag at the fore, the Harbour Master or his deputy will send written notice to the Medical Inspector, who shall visit the vessel without delay.

VI —The River Police will meanwhile prevent all communication between the vessel and the shore, pending the Medical Inspector's instructions.

VII —1. The master of such vessel shall on the Medical Inspector's demand muster the officers, crew and passengers, produce his roll and passenger lists, give every facility for the examination of the vessel, and afford all required information within his knowledge regarding the previous and actual sanitary condition of the vessel, crew and passengers.

2. If there has been no infectious disease on board during the voyage or within 10 days of having reached Woosung, the vessel may be admitted immediately to *libre pratique*. If in the judgment of the Medical Inspector there be no reason for detention, a written statement to that effect will be given to the master, with or without permission to haul down the yellow flag at once.

3. Masters of those steamers to which permanent berths have been assigned may proceed to their berths immediately on receiving the Medical Inspector's permission to haul down the yellow flag. The Medical Inspector will report his action in such case to the Harbour Master.

4. If in the Medical Inspector's opinion it be necessary to detain the vessel below the anchorage for purposes of disinfection <sup>or</sup> removal of infected person or persons <sup>or</sup> of a dead body or bodies, he will give directions to that effect to the master and will order the measures necessary to be taken. This detention will be reported to the Harbour Master, by whom the Consul concerned will be informed if detention for a longer period than 12 hours be deemed necessary.

5. If circumstances should be such as in the Medical Inspector's judgment to render it necessary, the vessel may by him be directed to proceed outside the Red Buoy at Woosung while such measures as may seem advisable for the removal of infected persons <sup>or</sup> dead bodies and for the disinfection of the vessel and cargo are carried out. The Medical Inspector shall in this case at once notify the Commissioner of Customs and Harbour Master, by either of whom the Consul concerned will be informed of the circumstances.

6. When it is found necessary to detain a vessel or to cause her to return to the Red Buoy as above provided, all persons who are free from the diseases enumerated in Article II, paragraph 1, of these Regulations, or from reasonable suspicion of such diseases, shall, on giving their names and destinations, be permitted to land immediately, under conditions as to their baggage which will be determined by the Medical Inspector.

7. In any case the term of detention may be extended or lessened at the discretion of the Medical Inspector in concert with the Consul concerned. Suitable arrangements will when necessary be made for provisioning, according to the circumstances of each case.

VIII —Nothing may be landed and no person may be allowed to leave the vessel or to go on board without the sanction of the Medical Inspector, which in case of detention must first be notified to the Harbour Master.

IX—No vessel detained for disinfection will be reported to the Customs as an arrival by the Consul concerned until the Consul shall have been informed by the Harbour Master that the Medical Inspector's directions as to disinfection have been properly carried out

X—In accordance with Local Rule 17 of the Pilotage Regulations, Pilots shall not, until authorised to do so by the Harbour Master, quit any vessel under their charge to which any of the clauses in Article II, paragraph 1, of these Regulations are applicable. If tug-boats are required they must "tow ahead" all such vessels

XI—1 Should a case of any of the diseases mentioned in Article II, paragraph 1, of these Regulations, or a case of dysentery or typhoid fever, occur on board a vessel in harbour, the patient must be landed under the direction of the Medical Inspector or of some legally qualified medical practitioner. During the stay of such patient on board the vessel, and after his departure, care must be taken that no discharges from his stomach or bowels, and no washings from his body, clothes, bed, bed furniture, etc., are thrown into the river without previous disinfection, nor may anything which it may be considered necessary to destroy be cast overboard

2 Should disease of a virulent character break out on board any vessel in harbour, or any infectious disease become so prevalent on board as in the Medical Inspector's opinion to render it necessary to remove such vessel to a point outside the harbour limits for purposes of disinfection, the Harbour Master, moved thereto by the Medical Inspector, may order such vessel to remove to the place indicated and to remain there until such processes of disinfection are carried out as may satisfy the Medical Inspector, who will thereupon report to the Harbour Master that the vessel is no longer a source of danger

3 The Harbour Master will immediately inform the Consul concerned when it is necessary thus to remove a vessel temporarily from the anchorage

4 During the interval necessary for the process of disinfection, communication between the vessel and the shore will be prevented by the River Police, unless conducted under such conditions as are sanctioned by the Medical Inspector

XII—It is assumed that the Commanding Officers and Surgeons of men-of-war visiting Shanghai will, either themselves or in concert with the Medical Inspector, take such precautions in case of need as will carry out the spirit of these Regulations

XIII—Any person who commits a breach of these Regulations will be dealt with by the authority to whose jurisdiction he is amenable

XIV—When disease shall have ceased to prevail at a place declared infected under Article I, paragraph 1, of these Regulations, the Superintendent of Customs, when moved thereto by the Board of Treaty Consuls, will inform the Commissioner that detention of vessels from that place is no longer necessary. The Commissioner will thereupon give public notice that vessels from that place are not subject to detention, unless they should fall under any of the clauses in to vii inclusive of Article II, paragraph 1, of these Regulations. The Commissioner of Customs [or other local authority in the case of foreign ports] at the place previously declared infected will be at once notified of this for the information of masters of vessels leaving that place for Shanghai

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## DR W A HENDERSON'S REPORT ON THE HEALTH OF CHEFOO

For the Year ended 31st December 1887

THE year 1887 was remarkable chiefly on account of the flood, preceded by an exceptionally severe rainfall in May and June—32 inches of rain falling in one month—and followed by a very dry autumn, during which the country suffered as much perhaps from the want of rain as it had previously done from its extra abundance

The health of the foreign residents was satisfactory as far as climate was concerned, but the improvements (?) in the drainage system were noticeable in then anything but improving the health of those exposed to their influence. The drains have become a yearly increasing nuisance, and the foul smells given out from them have at last stimulated land-renters to take the matter into consideration

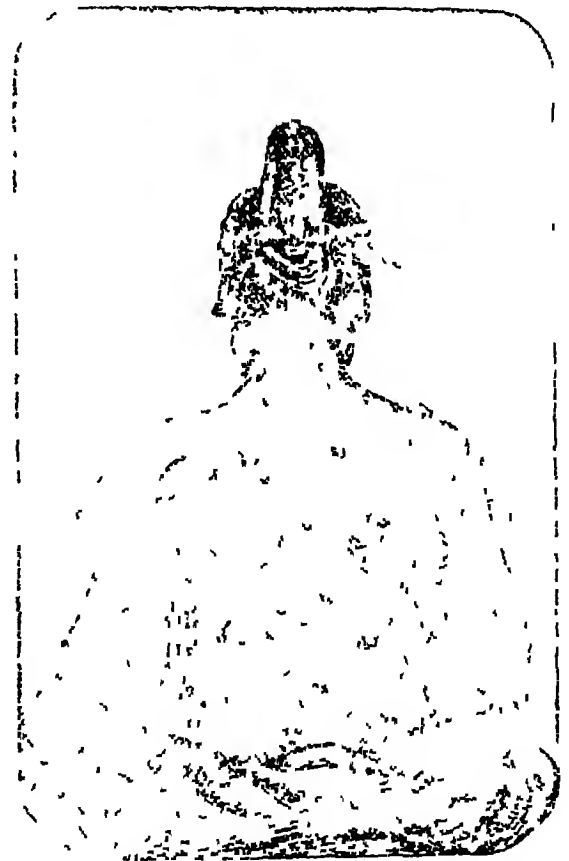
Apart from the inconvenience of having nothing but water as a means of communication, the influence of the flood was not markedly prejudicial to health. At about the end of the period it became evident that steps would need to be taken if the flood were to continue, to prevent mischief. The water was more or less stagnant, and it was difficult to prevent Chinese from throwing all kinds of house refuse into it, and therefore things became noticeably unpleasant. After the flood subsided there were numerous cases of fever and diarrhoea, but not more than we usually see during the month of September. A case of diphtheria occurred in one family, but did not spread. It was the first appearance of the disease in this port, to my knowledge, and it occurred under circumstances specially favourable for its growth. I am therefore able to give a most satisfactory account of the health of the foreign residents for the period under consideration

The new system of taking observations at the Custom House is a most complete one, four are taken daily—at 3 A.M. and 9 A.M., at 3 P.M. and 9 P.M. The barometer with attached thermometer, and the wet and dry bulb thermometer, the solar and ground radiations are also noted, the rainfall, direction and force of the wind, and notes of the state of the weather. During January snow fell lightly on several days, deep snow on the 22nd and 23rd. February was marked by dense fogs in early mornings, lasting from about 5.30 A.M. to 8.30 A.M., light fall of snow took place on 8th February. April was remarkably fine. Heavy rain fell in May and June—one night, 7 inches fell. July 14th was the date of flood, and after that date until end of December—in fact, well on into 1888—we had no rain, the days marked as those on which rain fell had to be so marked to make the observation accurate, but the light sprinkle that took the place of a rain-shower ought not to be dignified with the name of rain.

Quite recently the question of the contagiousness of leprosy has been the subject of renewed interest, and it is therefore the duty of all having opportunities of studying the subject to record their experience

In this part of China leprosy is very common, especially those forms of it evidenced clinically by affections of the nervous system. There are also a fair proportion of the tubercular and ulcerating varieties.

As far as my experience of leprosy in China goes, I have failed to obtain any positive evidence of its contagiousness or to throw any light on the great problem of its propagation. Although it is very prevalent, and I see cases of it every day, I have never yet been able to trace the source in any case to the fountain-head. A common answer of a patient is that none of his family have or ever have had a like disease, often they do not know of another case in their village, etc. There are of course special difficulties in obtaining information from the class frequenting our waiting rooms. I have been forced to come to the conclusion that I cannot depend on any statement made to me by my ordinary hospital patient, and believe only what I can verify for myself by an examination. The experience of leper hospitals in civilised countries will be of most value in deciding on this difficult point. Certainly, if it be contagious it is but in slight degree, and in a special way, and requires specially favourable circumstances to even allow of its being so.



#### MOLLUSCUM FIBROSUM

The following notes of this case are worth recording. Ko, aged 28. First saw appearance of tumours at the age of 12 years. When 7 years old she constantly suffered from great pain in lower part

of belly This condition continued until the age of 12, the pain appearing to cease when the tumours appeared Since that date she has continued in perfect health, with the exception of indigestion and the anxiety about her condition The tumours began as simple marks on the skin like a reddish coppery stain, no itching or pain Their growth was slow, and she only suffers from the discomfort of the uneven surface when washing herself

Family history —Grandmother, aged 80, alive, well and strong, no tumours Mother had the same tumours as patient, only to a slighter extent, cannot say when they began, but a witness states that immediately after death taking place all the tumours disappeared Age of mother at death, 28 Patient is the only living child—one died at 6 months, one at 9 months, causes unknown Father alive and in perfect health, aged 56, no tumours Husband alive, no tumours Patient's family consists of two girls and one boy A girl, aged 10, has now got a few tumours on body, the boy, brought for my examination, has three or four on thigh, and one or two of the initial reddish coppery stains—age  $3\frac{1}{2}$ , and a particularly fine, fat, healthy-looking child

All the tumours on body have the same characters They appear to be composed of a loose fold of skin with a knotty hard core not filling one tenth of the cavity and firmly attached to the deep fascia In some this core is almost absent The external appearances are *not*, simply a circumscribed pouch of normal skin The large tumour on shoulder feels like the emptied sac of a cystic tumour That on the right shoulder has the external characteristics of a lipoma

Removal of one for examination refused

# DR R G WHITE'S REPORT ON THE HEALTH OF CHINKIANG

For the Year ended 31st March 1888

THE health of the community was considerably affected by the long hot summer weather. The following table, supplied to me through the kindness of the Harbour Master, Mr POYNTER, will indicate how protracted the heat was —

METEOROLOGICAL TABLE, April 1887 to March 1888

MONTH	BAROMETER		THERMOMETER				RAINFALL	
	Max	Min	Max.	Min	Average Highest	Average Lowest	Quantity	No of Days
1887	<i>Inches</i>	<i>Inches</i>	°	°	°	°	<i>Inches</i>	
April	30 60	29 55	87	40	70	56	2 08	4
May	30 10	29 72	85	52	68	60	5 60	10
June	29 90	29 50	88	64	75	67	3 96	10
July	29 90	29 55	98	66	93	70	3 42	5
August	29 80	29 53	98	74	89	78	2 53	4
September	30 32	29 70	89	58	75	69	2 38	7
October	30 57	29 85	82	47	74	54	1 05	2
November	30 71	30 20	71	43	58	48	0 26	2
December	30 88	30 10	68	23	50	45	0 16	1
1888								
January	30 85	29 93	67	23	48	35	2 53	8
February*	30 84	30 17	56	24	45	36	1 61	1
March	30 77	29 91	76	34	61	48	3 68	9

\* Three days snow

The chief complaints were diarrhoea, fever (intermittent) and gastric complaints. These last were very troublesome and severe at their onset. In one case the vomiting and prostration were so severe that I had to resort to the hypodermic injection of morphia, this acted like a charm. Towards the end of the hot season there was a case of cholera amongst foreigners —

The patient, a robust healthy man, eventually recovered rapidly. Cramps in almost all the muscles were most distressing, and for some days the muscles were painful. The treatment consisted of hypodermics of morphia, sprits of camphor with tincture of opium internally, and a liberal supply of beef tea and brandy given repeatedly in small doses. A native policeman had a sharp attack also. He recovered well. The treatment was the same as above.

There were many cases of cholera amongst the natives, and the mortality was considerable. There were many sudden deaths during the hot weather, so far as I could learn they were all old persons or persons well up in years. The cause of death was most probably apoplexy, to which there already existed a tendency, and the heat accelerated the disease. In one case I attended this was undoubtedly the cause of death. One case of typhoid fever occurred amongst foreign residents.

The symptoms were not well marked, if I except the typical spots. There was at the end troublesome lung complication, but eventually a good recovery was made, the patient having youth and strength on his side.

A severe case of burn occurred on a house boat some 40 miles from Chinkiang. The weather was bad and the water in the canal low. The unfortunate lady who was burned had in the end to come overland—a distance of 20 miles—in a native chair, through rain and wind. The case did very well, and much is due to the lady's courage and endurance in securing a good recovery.

Several cases of urticaria of a very distressing nature came before me—one, a foreigner, had a miserable existence for four or five days.

There were three births during the year amongst the foreign community and no deaths.

I was summoned to a native lady who had been in labour some 20 hours. The numerous nurses in attendance were at a loss to account for the delay in delivery. After some delay I was allowed to make an examination. The presentation was natural, the parts much tumefied, the pains feeble, the bladder full and evidently the cause of obstruction to a great extent. The patient's pulse was fair, her voice strong, although she complained of great distress and pain. I promised speedy delivery, but the lady's mother would not allow a "foreign devil" to further meddle with her daughter, so in disgust I left the house. About two hours after I was sent for, and a promise given that I was to have absolute control over the case. On my return I found there had been a profuse discharge of some fluid. I passed a catheter. The bladder was empty, having ruptured. The pains were feeble, and the lady was getting so also. I gave ergot, had chloroform administered and delivered with forceps. The child was still-born. The patient recovered well, but with a fistula.

Another case was reported to me further illustrating the sufferings endured by Chinese women, and the many lives lost through ignorance and superstition. A midwife removed the trunk and extremities of a fetus (so it was reported to me), leaving the head in the passage. The woman survived two or three months. She had a profuse and foul discharge and grew weaker every day until she perished. She wished to have me sent for, but her friends would not agree to it.

A case of hydrophobia occurred in July.

No. 3 Municipal Policeman was one morning (14th June 1888), at 6 o'clock, engaged in sweeping on the Bund (he was stripped to his waist), when a dog jumped on him and bit him. At 10.30 A.M. he was brought to me. He was a strong muscular man, 29 years of age. He had a very superficial scratch, not 3 inches long, to the right of the right nipple, which might have been made by a dog's teeth, he had two smaller scratches, not skin deep, probably made by the dog's claws. It was so long after the scratch was received that I did not cauterise the place, but applied a poultice. The policeman had killed the dog and, as I afterwards learned, had also eaten it. On the 17th June he returned to duty, and was apparently quite well until the 9th July, when he complained of pain all over the right shoulder and chest. The scratch under the nipple was of a dusky purple colour. The man had an anxious look. He did not seem to connect his present state with the dog-bite. His appetite was bad, he could sleep well. On the 10th he stated he was better. He had had opium internally, and locally a poultice. On the 11th I asked him to drink some tea. He was unwilling, but at last procured a little water, which when he put a little in his mouth caused immediate spasm. He could eat dry food. In the afternoon the wind was high, he told me it made him shiver. On the 12th he seemed much distressed. We were prepared in the case of a fit of mania supervening. Near midnight I was informed that he had become violent and had tried to injure his wife and child, so we at once secured him. His fits came on him about every 15 minutes, and were most violent, lasting some four minutes. During the intervals he was quite clear in his mind and expressed regret for his violence. The fits of mania became more frequent, and exhaustion rapidly terminated his suffering at 4 A.M. on the 13th July. No postmortem examination was allowed.

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## DR G R UNDERWOOD'S REPORT ON THE HEALTH OF KIUKIANG

For the Year ended 31st March 1888

In this port the past year has been the healthiest of the last seven, notwithstanding the floods and the high range of temperature during the summer months

I am indebted to Mr Harbour Master GUNTHER for the following abstract of meteorological observations —

MONTH	THERMOMETER				RAINFALL	
	Maximum		Minimum			
	Highest	Lowest	Highest	Lowest	Days	Inches
1887	°	°	°	°		
April	88 5	52 5	66	39	10	3 04
May	89 0	61 0	70	55	17	10 60
June	95 0	75 0	79	66	22	16 44
July	101 5	73 0	85	68	7	2 81
August	100 0	80 0	85	76	7	1 37
September	97 5	73 0	79	65	6	0 48
October	90 0	60 0	70	51	4	0 93
November	77 0	55 0	57	40	5	0 58
December	74 0	41 0	45	21	3	0 38
1888						
January	69 0	32 0	45	20	10	3 08
February	58 0	32 0	43	18	8	1 76
March	80 0	46 5	59	35	14	5 64

Number of days on which rain fell during the year, 113 = 47.11 inches, snow fell 20.70 inches, on 13 days, and hail, 1 day = 0.23 inch

Usually when the river begins to fall, the heat being still great, there have been a good many cases of intermittent fever and intestinal troubles. In the past autumn these affections were less frequently met with. Even the stagnant pond behind the concession which annually gives strong grounds for being credited with the propagation of the malarial contagium—though its condition, as judged by its offensive smell, was not better than in former seasons when every house near would have its case of ague more or less severe—had no appreciable

influence on the general health. A considerable number of those living in its neighbourhood in previous years had already spent some time in climates unhealthy as regards periodic diseases, and required little exposure to light up the old mischief. Their successors have been more fortunate, and being therefore more able to withstand the onset of these maladies have suffered less. The very gradual fall of the river too, permitting the thorough drying of the surface of the ground to the water's edge, had certainly much to do with the general well-being.

Most foreign residents here understand so well the necessity of being careful to avoid exposure to the sun in summer that that is seldom a cause of illness. The following cases show that caution is certainly desirable —

At 5 o'clock on a bright morning in July, A B, 26 (who had been suffering from malarial fever for several weeks), with two children, left one of the bungalows on the hills 8 miles off to come down to the concession. The journey ordinarily takes about three hours, but from some cause or other the party did not arrive in the street before half-past 9. For half the way the patient was in an open chair, and, having putted with her hat to protect better one of the children, she was entirely without covering to the head except such as was afforded by an umbrella. Soon after getting in, intense headache with vomiting and rapid action of the heart began, and the temperature rose to  $104^{\circ}$ . There was intercurrent delirium, which, however, was of little significance, the patient being weak from the continuance of the fever and her nervous system for the time particularly susceptible. The continued pouring of iced water on the head relieved the headache, and a calomel purge remedied the constipated condition which is so often present in these cases. Bromide of potassium subdued the restlessness and inability to sleep which followed, and the temperature gradually fell. After a week the patient was able to be moved home, and with no permanent bad result from her imprudence.

In summer weather, C D, 25, left Kiukiang in a small native boat for a city 100 miles down river on open-air mission work. One day, when on the return journey and 18 miles from home, he was preaching in the lane of a Chinese town, on either side of him was a whitewashed wall, and he was exposed to the full blaze of the afternoon July sun. He felt faint and sick after a short time of it, and had to go back to his boat. Fever came on, with headache, and he got little rest during the night, but felt better when he arrived at home next morning. He then went out, with the result that the fever came back, and, to add to his troubles, a bruise on the shin received while bathing developed into a sub-periosteal abscess. The propriety of further exposure he had ample time to consider in the six weeks which passed before he was fit for work again.

The following notes of a case which came under my care in the end of July last present some points of interest —

E F, 21, female, unmarried, complained of headache confined to the back of the head and increased by study, inability to sleep well at night, poor appetite, and pain and fulness in the pit of the stomach after eating, and loss of strength. Patient stated that in April last, while travelling in a steamer on the coast, she fell, the back of her head striking the deck, and remained unconscious for some little time afterwards. She had to be carried ashore on arrival in port, and some weeks elapsed before she was fit to be removed to the interior. Headache and inability to sleep were then the chief symptoms, and the physician who saw her advised rest, counter-irritation to the nape of the neck and iodide of potassium internally. The patient was a little over the middle height, strongly built and of fair muscularity. Her face was full, with some colour, and did not convey the impression of continued suffering. The upper eyelids were not particularly prominent or drooping. The circulatory, respiratory, urinary and reproductive

systems were healthy With regard to the nervous system there was neither paralysis nor paresis of any part of the body Sensation over the trunk and limbs was unaltered, and deep pressure applied to the spines of the vertebrae, from the nape to the sacrum, gave a negative result as far as the production of pain was concerned The application of a hot-water sponge over the same surface also gave negative evidence Control over the limbs was perfect There was absence of the ankle clonus, the knee jerk was natural in both limbs and the abdominal reflexes were normal The headache was said to be dull and heavy, almost constantly present, not confined to either side of the occipital region, and became worse after study or reading It, when present, was not so severe as to hinder the patient from enjoying singing by herself or joining in with others in the exercise Rest in the recumbent posture soothed it little, nor did pressure on the occiput increase it General intelligence and memory were unimpaired The patient's thoughts were much occupied with her condition, though she did not seem to be despondent about herself The nerves of special sense were normal The tongue was a little flabby and coated. The appetite was poor and the quantity of food taken not enough Fulness and pain in the epigastrium were complained of after eating, but moderate pressure over that area did not increase the discomfort Vomiting was not at all a frequent symptom The bowels had a tendency to constipation The opinion formed about the case was (1) that there was no evidence pointing decidedly to lesion of the brain or cord, (2) that while it was probable that there had been as the result of the accident a certain amount of local inflammation of the membranes with deposit, and to this might be attributed the headache which from the time of the fall had never been long away, yet it was certain that the effects of the concussion on a highly nervous temperament at a time when the increasing heat retards convalescence must be credited with many of the symptoms How much was due to the injury and how much to hysteria I could not determine The patient was ordered to rest as much as possible without being compelled to remain in the recumbent posture all the time A strong iodine liniment was to be applied to the nape of the neck as often as it could be borne, with a view to relieving the headache, and iodide of potassium in 5-grain doses three times a day with the same intent Bromide of potassium was given at bedtime to produce sleep, and the diet was to be of an easily-assimilated character This treatment was continued for five weeks, and the patient had less headache and slept better The dyspeptic symptoms had, however, increased, the appetite also was not improving, and it was judged best to substitute bismuth and alkalies, to be followed as soon as the state of the stomach permitted by a tonic of quinine and strychnia The patient had for some considerable time been getting round-shouldered, and the only explanation of this I could find was weakness of the muscles of the back She left the district in the end of September, better on the whole, though still not satisfactory Within a fortnight of her departure the surgeon who was consulted in the case ordered absolute rest on a mattress on the floor and the wearing of a plaster of Paris jacket I am informed that at the end of December, with a certain general improvement, there was almost complete anæsthesia of the left half of the body, and thus the share of hysteria in the symptoms was made out

*Pulmonary Abscess*—Towards the end of December I was called to see a patient who complained of pain in the lower part of the right side of the chest behind, of cough with blood in the spit the day before, and that the breath had a fetid odour The history given was that in July last, just eight weeks after confinement, the patient had had sharp pain in the place of which she now complained, with troublesome cough and high fever This lasted for eight days, when after a paroxysm of coughing there was a discharge of purulent matter Improvement began from that time, and the patient had been in her usual health and free from cough for over two months before the present attack The patient was 28, of middle height and build and somewhat anæmic, and had a pulse of 90, and temperature of 100° 5 There was cough accompanied by pain in the right side, and a small quantity of sticky muco-purulent expectoration, which had no smell Percussion over the right base posteriorly gave comparative dulness to the level of the angle of the scapula The breathing was tubular, with a little crepitation over the affected area, and at

one point pleuritic friction was present. Poultices were applied to relieve the pain, the bowels were cleared and a mixture given to increase the action of the skin. There was little change from day to day, except that the cough was said to be less and that the sputum became more distinctly purulent, though little increased in quantity. On the ninth day from the time the patient had been first examined she felt much worse, the temperature rose to  $104^{\circ} 5$ , the pulse was 115, and the respirations 30. After a severe fit of coughing the expectoration became at once very copious, and from its acidity and hot taste the patient declared that the old abscess had opened up. With the coughing there was blood which amounted to about 4 ounces in the 24 hours, it was from some ruptured vessel, and not mixed with the sputum. With this high fever the area of dulness had extended upwards slightly. At times in the midst of a fit of coughing, or after it, a foul odour would fill the room. After the 1st day there were only traces of blood, and the fever began to diminish on the 5th, so that by the 10th day the temperature had fallen to  $101^{\circ}$ . The expectoration continued profuse—over 10 ounces in 24 hours,—fiothy and muco-purulent, and with at times a foul smell. Under the microscope the débris of lung tissue could be found readily. The odour of the breath was most disagreeable. Every paroxysm of coughing was not accompanied by this fœtor, but only when the plugged bronchus leading to the cavity of the abscess had got so clear as to permit of the escape of gas. The irritability of the stomach during the continuance of the high fever and for some days after was most troublesome, and was made worse by full doses of quinine given to lower the temperature. Percussion over the base of the lung after the escape of much spit produced the cracked-pot sound. The patient took with good result 8 ounces daily of a dry natural port when the appetite was almost absent. At the end of the third week the temperature was steady at  $99^{\circ}$  to  $100^{\circ}$ , the pulse 85 to 90, and the respirations 22 to 25, the appetite had quite returned, and though the expectoration was still abundant the fœtor was less than before. A second acute attack, preceded by a slight rise of temperature and increased discomfort in the affected side, came on 37 days after the first, and again there was blood in the sputum. The fever, which had not risen so high, went down quickly, and as convalescence progressed the temperature fell to  $98^{\circ} 6$ , at which point it remained several weeks. Night sweating was not a feature in the case, and with the administration of atropine it, when present, readily disappeared. During the acute attacks pain was complained of, and was often relieved by poultices or a hot-water bottle. The air in the room was kept moist night and day by the use of a bronchitis kettle. The lung did not improve in the same degree with the general condition, and with each attack there was additional tissue involved. During the first interval, and more especially in this, retention of the contents of the abscess cavity was followed immediately by a rise of temperature and feeling of discomfort on the part of the patient. Relief followed free expectoration. A third attack followed the second at an interval of five weeks, and was not so severe. Convalescence was less satisfactory than before, and the patient gained ground very slowly. Every few days there have been slight feverish attacks, the appetite has been less uniformly good, and now and then there have been paroxysms of coughing with blood in the spit. Dulness is now to be found on percussion as high as the sixth rib in the right interscapular space and in the right nipple line to the level of the fifth rib. Moist sounds are always to be heard over the affected part of the lung. The lining of the abscess cavity is, to judge from the fœtor, in much the same condition as before. Along with good nourishment the patient has found port to be most beneficial. Bismuth has repeatedly been of use in allaying irritability of the stomach. Turpentine in full doses has not had any appreciable good effect on the odour from the lung, and the inhalation of an impregnated with creasote, etc., could not be tolerated.

Two foreign patients died during the year. The one was a child of 18 months, who had always been very delicate. She had for three days been fretful and had slight fever, which was believed to be due to teething. On the fourth day she seemed better, took more food, and all irritability of the stomach had ceased. Up to midnight, when her father and mother went to bed, she was bright and lively, when they awoke in the morning she was dead. There were signs that there had been a fit of convulsions. A second child of 6 weeks died of acute bronchitis.

There were four male and two female children born during the year

6,000 natives came to the dispensary during the year, and of these 520 remained as in-patients. As usual, malarial, eye and skin diseases were the most numerous. Much of the eye practice is very disappointing, it being impossible, from the extent and duration of the mischief, to do more than relieve a very little in many cases. 16 patients with dog or other bites were treated. As a rule the bite of a dog heals up quickly in a healthy subject, but in the case of beggars, usually so anæmic and half-starved and so frequently bitten, the results are often very different, sloughing is apt to follow, with the loss of much tissue.

A deaf and dumb boy of 12 is now in hospital who was bitten by a native dog in the calf. When brought to the hospital, 14 days after the injury, the skin, subcutaneous tissue and fascia had disappeared from the body of the gastrocnemius and upper part of the tendo Achillis, and numbers of maggots were burrowing under the edges. He was in poor condition at the time he was bitten, and now, five weeks after the accident, while his appetite is good and the wound is drawing in, he is in such a hydiæmic state that recovery is very doubtful.

A child of 9 months was brought here in June in whom the scrotum, testes, and penis, except a short stump, had been gnawed off by a native puppy. The mother, who was deaf and dumb, had gone out of doors for a little, leaving the child in a cradle, and only noticed from blood about the dog's jaws that something was wrong. Little blood had apparently been lost, and the patient being in good health the raw surface healed rapidly. Beyond daily dressing nothing required to be done.

In February a youth of 19 was bitten by a dog in the street, the scrotal covering being entirely reflected from the left testis, which fortunately was uninjured. A few horsehair stitches were put in, and the wound healed kindly.

Rabid dogs in the street are now and then heard of, and patients come said to have been bitten by them, but no case of rabies in man has been met with. Three Chinese are under observation now who believe themselves to have been bitten by mad dogs, they were certainly bitten, and came to have their wounds attended to when the poison had more than time to be completely absorbed.

A man, aged 28, was brought in from the country in the early summer with his right foot and leg much swollen. The whole of the skin and subcutaneous cellular tissue of the dorsum of the foot and to 3 inches above the ankle on the anterior surface of the leg had sloughed away, leaving the tendons exposed. The other leg was œdematous and the face puffy and anæmic. The patient was a woodcutter, and one day, three weeks before his coming in, when at work, a snake bit him on the dorsum of the foot. Intense inflammation was set up and the parts became gangrenous. In spite of treatment he became gradually worse and died two months after the bite.

In July a youth of 20, who was collecting reptiles for an English naturalist then exploring this district, was bitten on the distal phalanx of the right forefinger by a viper 15 inches long which he had just captured. When seen three days afterwards the phalanx was gangrenous, and was lost. He did not suffer in general health.

No immediately fatal case of snake-bite in this neighbourhood has come under observation. That such do occur is very probable, seeing that besides several of the smaller poisonous snakes, a variety of cobra—found elsewhere also in China—has been killed in the Lu hills, a few miles off. Another snake, a crotalus—new to the British Museum authorities last year,—

is found in Chitsao district in numbers. Dr GUNTHER believes it, from the development of its poison glands, to be a most dangerous reptile. The spirit in which a specimen of this snake is preserved is considered to be a valuable medicine, and is freely purchased from hawkers who go about selling it. The ordinary price for a live crotalus is \$3.

The following history is interesting from the view of Chinese legal procedure in cases of insanity which it gives —

TUI I-RAN, 28, a native of Shantung, was employed as colporteur by a missionary who came to live here in autumn last and brought him with him from Chinkiang, his former residence. Mr Tui was a man of quiet habits, but was believed by one or two who had opportunities for observing him closely to be "queer in his head" at times. At the end of the year some irregularities were found in his accounts and he was dismissed. A day or two after his services were dispensed with he besought another missionary living in the same compound with his former employer to admit his boy into the mission school, saying that as he had now nothing to do he meant, as soon as his little boy was provided for, to kill his wife, who was utterly bad, and then jump into a well in the compound and drown himself. His remark was regarded as a stupid joke, and the notion that he was insane was not entertained. In the afternoon of the third day following this conversation a disturbance was heard at the gate, and the wife, who lived in a cottage almost directly opposite, rushed into the compound bleeding profusely from two cuts on her head and followed by her husband armed with a chopper. Some of the servants went to the help of the woman, and the husband, ceasing to follow her, went up to the missionary, who was out of doors at the time, and said, "I've killed my wife and am now going to jump into your well." He thereupon started at a run for the well, the missionary at his best speed hurrying after. Fortunately, a few days before, a wall 3 feet high had been built round, narrowing the mouth of the well, and to get in he required to draw up his long coat, thus losing time. Just as he was disappearing his queue was seized and held on to, and in a short time he was hauled out. The woman was taken to the hospital to have her wounds attended to. One cut reached from the right side of the forehead backwards along the parietal ridge about 6 inches. Happily it slanted outwards, reflecting the scalp downwards, and not injuring the pericranium or bones. The other was on the left side and smaller, a piece of scalp 2 inches in diameter being all but detached. A good deal of blood was lost, and to add to the trouble she expected her confinement in a fortnight. Stitches were put in, and the process of healing was quick. After being got out of the well the husband was tied to a tree close by, but as he threatened to jump in again as soon as let loose he was taken to the magistrate. This gentleman was much aggrieved that the domestic difficulty should have been interfered with by foreigners and that he should be dragged into it. He was most unwilling to take charge of the man, till told that if the woman were murdered he would be held responsible. All this while the man behaved rationally, and said that his wife was bad and that he was entitled to do with her as he chose. He convinced both magistrate and attendants that he was quite sane, and though he was put in prison as a precautionary measure, they believed it to be unnecessary. Their views were somewhat modified when he made an attempt to murder one of the yamen runners the same evening, and fetters were put on him. The gaol-keeper was quite tired of him within a week, and tried to get the wife to leave the hospital and go back home to take care of her husband, whom they wished to let go. As soon as she could she left the hospital, and had a place, food, and attendance provided for her by the former employer of her husband till her child should be born. Her husband had his meals also provided by the same gentleman. (A Chinese employer would have been compelled to meet these expenses.) In discussing what was to be done with the family, the magistrate said that they must be sent to the place they came from—namely, Shantung,—if possible, or failing that, then Chinkiang. Being asked what steps would be taken to prevent the man from killing his wife, he replied emphatically, "None, it would be the easiest solution of the difficulty, as in all probability the woman's clan would take care that the man should lose his head." The notion that

it was for him to protect the wife, or to do anything further than get rid of the case by sending the family out of his district, was quite new to him, and one of which he apparently little approved. In due course the woman had a child, the husband remaining in prison meantime. On the fourth day after, I was asked to see her, as she was complaining of not feeling well. There was nothing wrong with her, but the woman who attended to her wants would not give her any food, and the child was dead. The woman, being remonstrated with, said that every woman was expected in this district to get up and prepare her own food on the fourth day, and she wanted besides to get the Shantung woman out of the house at once. The child had been quite well, and was believed by the people of the house to have been made away with by its own mother, hence their anxiety to get rid of her, in case of trouble with the officials. There was no inquiry into the matter, and in a few days the woman was well again. Husband, wife and child were put on a steamer going down river, and nothing has been heard of them since. The poor wife, who had a good reputation amongst the neighbours, was always ready to take her husband's part, and affirmed that had he not been crazy he would not have acted as he had done.

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# DR J F WALES'S REPORT ON THE HEALTH OF CANTON

For the Year ended 31st March 1888

DURING the above-mentioned period there has been a greater amount of sickness among foreigners living here than I remember to have occurred in any year of my past residence in this port

Mr Harboun Master MAY has prepared the appended abstract from the meteorological tables for last year

## ABSTRACT OF CANTON CUSTOMS METEOROLOGICAL TABLES, April 1887 to March 1888

MONTH	WINDS							WEATHER			BAROMETER				THERMOMETER			
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	No of Days Fog	No of Days Rain	Rainfall in Inches	DAY		NIGHT		DAY		NIGHT	
											Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest
											Inches	Inches	Inches	Inches	°	°	°	°
1887							miles											
April	7	18			5		6.7		8	3.7	{ 30.26 30.02	29.75 29.95	30.20 29.90	29.78 29.92	85 78	58 72	81 72	58 69
May	2	22	3		4		6.8		12	9.4	{ 30.02 29.93	29.74 29.87	29.95 29.90	29.76 29.89	90 86	72 79	84 79	70 76
June		24	2		4		7.6		9	3.5	{ 29.95 29.85	29.68 29.79	29.92 29.81	29.68 29.79	94 88	81 85	86 83	75 80
July		26	1	1	3		7.2		12	7.47	{ 29.94 29.77	29.52 29.69	29.95 29.76	29.55 29.75	93 87	79 82	91 84	78 81
August	1	12	5		13		7.0		9	7.75	{ 29.97 29.88	29.70 29.83	29.97 29.87	29.71 29.83	93 87	72 81	92 84	75 80
September	1	15		5	9		8.2		13	13.25	{ 30.03 29.87	29.47 29.81	30.01 29.87	29.17 29.80	94 89	80 84	91 84	76 81
October	19	1			11		5.8		3	2.25	{ 30.22 30.08	28.83 29.99	30.15 30.05	29.83 30.01	88 83	68 76	86 78	65 73
November	21				9		6.0		2	0.4	{ 30.29 30.18	29.99 30.09	30.20 30.13	30.00 30.09	85 77	63 69	75 71	58 65
December	30			1			6.0		1	0.12	{ 30.40 30.21	30.00 30.12	30.35 30.17	30.05 30.13	79 70	50 61	73 64	48 58
1888																		
January	20	4			7	2	5.4	8	2	0.85	{ 30.35 30.18	29.95 30.11	30.31 30.15	29.98 30.12	77 67	45 59	70 62	45 59
February	12		2		15	1	6.1	9	8	2.95	{ 30.40 30.13	29.92 30.06	30.35 30.12	29.93 30.08	74 57	44 52	71 54	42 51
March	9	5			17	1	5.6	3	15	14.75	{ 30.28 30.06	29.87 29.98	30.20 30.03	29.92 29.99	81 69	54 65	74 67	52 64

REMARKS — 1887 During April the highest reading of the barometer was 30.26 inches, on the 3rd, and the lowest 29.75 inches, on the 18th. The highest temperature was 85°, on the 29th, and the lowest 58°, on the 23rd and 24th. Rain fell on 8 days, measuring



3.7 inches S E winds prevailed, and the strongest was recorded on the 3rd, averaging 15 miles an hour during 24 hours—During May the highest reading of the barometer was 30.02 inches, on the 1st, and the lowest 29.74 inches, on the 28th. The highest temperature was 90°, on the 18th and 28th, and the lowest 70°, on the 1st. Rain fell on 12 days, measuring 9.4 inches. S E winds prevailed, and the strongest was recorded on the 25th, averaging 11.5 miles an hour during 24 hours—During June the highest reading of the barometer was 29.95 inches, on the 2nd and 3rd, and the lowest 29.68 inches, on the 14th, 16th and 17th. The highest temperature was 94°, on the 19th and the lowest 75°, on the 2nd and 3rd. Rain fell on 9 days, measuring 3.5 inches. S E winds prevailed, and the strongest was recorded on the 9th, averaging 11.1 miles an hour during 24 hours—During July the highest reading of the barometer was 29.94 inches, on the 3rd, and the lowest 29.52 inches, on the 20th. The highest temperature was 93°, on the 14th and 28th, and the lowest 79°, on the 23th. Rain fell on 12 days, measuring 7.47 inches. S E winds prevailed, and the strongest was recorded on the 20th, averaging 16.8 miles an hour during 24 hours—During August the highest reading of the barometer was 29.97 inches, on the 30th and 31st and the lowest 29.70 inches, on the 3rd. The highest temperature was 93°, on the 1st and 13th and the lowest 72°, on the 16th. Rain fell on 9 days measuring 7.75 inches. S E winds prevailed, and the strongest was recorded on the 15th, averaging 17.5 miles an hour during 24 hours—During September the highest reading of the barometer was 30.03 inches on the 23rd and 28th, and the lowest 29.17 inches, on the 12th. The highest temperature was 94°, on the 10th, and the lowest 76°, on the 15th. Rain fell on 13 days, measuring 13.25 inches. S E winds prevailed, and the strongest was recorded on the 17th, averaging 19.6 miles an hour during 24 hours—During October the highest reading of the barometer was 30.22 inches, on the 26th and the lowest 29.83 inches, on the 5th. The highest temperature was 88°, on the 4th and the lowest 65°, on the 31st. Rain fell on 3 days, measuring 2.25 inches. N E winds prevailed, and the strongest was recorded on the 1st, averaging 12.4 miles an hour during 24 hours—During November the highest reading of the barometer was 30.29 inches on the 21st and 26th, and the lowest 29.99 inches, on the 9th. The highest reading of the thermometer was 85°, on the 9th, and the lowest 58° on the 30th. Rain fell on 2 days, measuring 0.4 inch. N E winds prevailed, and the strongest was recorded on the 10th, averaging 12.2 miles an hour during 24 hours—During December the highest reading of the barometer was 30.40 inches, on the 31st, and the lowest 30 inches on the 29th. The highest temperature was 79°, on the 13th, and the lowest 48° on the 31st. Rain fell on 1 day, measuring 0.12 inch. N E winds prevailed and the strongest was recorded on the 30th, averaging 15 miles an hour during 24 hours—1888. During January the highest reading of the barometer was 30.35 inches on the 1st and 2nd, and the lowest 29.95 inches on the 16th. The highest temperature was 77°, on the 19th, and the lowest 45°, on the 31st. Rain fell on 2 days, measuring 0.85 inch. N E winds prevailed, and the strongest was recorded on the 19th, averaging 12.4 miles an hour during 24 hours. A light fall of snow was recorded on the evening of the 31st—During February the highest reading of the barometer was 30.40 inches, on the 3rd and the lowest 29.92 inches, on the 12th. The highest temperature was 74°, on the 29th, and the lowest 42°, on the 3rd. Rain fell on 8 days, measuring 2.95 inches. N E winds prevailed, and the strongest was recorded on the 2nd and 17th, averaging 11.2 miles an hour during 24 hours—During March the highest reading of the barometer was 30.28 inches, on the 6th and the lowest 29.87 inches, on the 26th. The highest temperature was 81°, on the 14th and the lowest 52°, on the 5th. Rain fell on 15 days measuring 14.75 inches. N E winds prevailed, and the strongest was recorded on the 27th, averaging 11.1 miles an hour during 24 hours.

There have been numerous cases of diarrhoea and dysentery, especially in the winter months.

There were four deaths.

In January and February I attended three cases of small-pox. The symptoms in all were mild and ended in recovery. The disease was contracted by contact with affected passengers coming from Hongkong. From all the information I have been able to gather there were fewer cases than usual of this disease in Canton during the dry season, but in the country districts and surrounding villages small-pox prevailed extensively. The Cantonese do not appear to regard this loathsome disease with alarm, and one frequently meets convalescents in the streets whose features are incrustated with scabs and whose presence is in no way noticed by the passers-by.

In the absence of Dr. KERR I was summoned to the hospital to see a girl, aged 10 years, who had just been brought in from the country, where she had been injured by the horn of a buffalo seven days before. On examining I found a wound situated a few inches to the left and on a level with the umbilicus, through which protruded a portion of omentum as big as a large walnut. On cleansing the parts with a solution of boric acid I determined to return the protrusion—and succeeded, after having enlarged the wound, at same time taking care to prevent any blood from entering the abdominal cavity. The wound was closed with deep sutures. That evening her temperature rose to 100° F, but became normal the following morning. She had no other bad symptom, and left hospital convalescent after a stay there of 10 days.

## CLINICAL STUDIES OF DISEASE AS OBSERVED IN CHINA

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### CHAPTER II

#### HEAT-STROKE — " ARDENT FEVER "

THERE is almost always a surprise in store for the person who for the first time performs the autopsy of a case of heat-stroke. After observing, it may be, intense fever, congested and distorted features, maniacal excitement, epileptiform or tetanic convulsions, coma and stertor during the last hours of life, he expects to find the cerebral meninges gorged with blood, the brain hyperæmic or perhaps lacerated by hæmorrhages, and the ventricles full of fluid. On the contrary he will in the great majority of cases find the brain oedematous, and it and the membranes quite as pale as usual, if not paler, hyperæmia being confined to the sinuses and larger venous trunks in the membranes, without any sign of inflammation or of hæmorrhage. He will, it is true, find an excess of fluid in the ventricles, but the most striking pathological alterations will appear to have concentrated themselves mainly in the friable cardiac muscle, the over-distended right heart and the blood-laden lungs. He will further notice considerable effusion into the pleuræ and pericardium, and he will have observed that putrefaction began speedily after death and progressed with great rapidity, and that the blood throughout the body has remained fluid.

Using the term "apoplectic" in its usual but restricted sense, the affection is therefore in general not apoplectic in character.

In a case of the syncopal form (*see* page 31) occurring in a man with diseased vessels, reported by Dr REID of Hankow,\*

On postmortem examination nine hours after death there were found enlargement of cerebral veins and sinuses, and an enormous serous effusion lying over the surface of the brain and elevating the membranes at some points to the height of half an inch. The arteries at the base were atheromatous, the lungs congested, and the left lung adherent throughout, liver and kidneys in a state of fatty degeneration.

The postmortem appearances in the following case, of which I find only a brief and unsatisfactory note, were exceptional —

M S, sailor, aged 17, exposed himself to the sun on the 5th August 1872, and complained of headache and general malaise during the following night. At noon next day he was delirious, with a temperature in the axilla of  $103^{\circ}$  F, and subsultus. His condition remained unchanged until 4 A.M. on the 7th, when he became rational, his temperature having fallen to  $102^{\circ} 2$ . At noon he again fell into delirium, with a temperature of  $103^{\circ} 2$ , and from this point the temperature steadily rose until 4 P.M. on the 8th (4th day), when the thermometer in the axilla marked  $108^{\circ}$ , and the boy died.

On examination the arachnoid was found opaque, with much serum beneath it on the convex surface of the brain, but there was no effusion at the base. The pia mater was greatly engorged, and

\* *Customs Medical Reports*, xii, 15

a firm clot occluded the right internal carotid artery. The brain substance was healthy, and the ventricles contained little or no serum. The left lung was excessively congested, blood pouring from it on section. The right lung was healthy. The heart also was healthy, and the cavities empty.

It is not easy, nor would it indeed be of much practical utility, to establish absolutely distinct types among the different forms under which the phenomena of heat-stroke manifest themselves. From the description which follows it will be seen that all the different forms overlap one another, cardiac and pulmonary symptoms being momentarily more prominent in one case and nervous symptoms in another.

I have chosen the term "heat-stroke," rather than that of "sunstroke," as the heading of this chapter, because the phenomena of ardent fever frequently present themselves at night and where there has been no exposure to the direct rays of the sun. But even this term "heat-stroke," though probably the best available, might be criticised on the ground that it implies too limited a view of the pathogeny of the affection, for there is some ætiological factor required besides mere external heat, else it would be impossible to explain why, out of a large number of men (*eg*, soldiers on the march) under identical external conditions, only a small ratio should be attacked by heat-stroke in any form. Moreover it is well known, as the result of accidental and laboratory experiments, that the healthy human body may be exposed with impunity to a much higher temperature than is usually assigned as the cause of attacks of ardent fever. "Many instances are on record of a heat of from 250° to 280° being endured in dry air for a considerable length of time, even by persons unaccustomed to a particularly high temperature" (CARPENTER). Physical or mental exhaustion, prolonged anxiety, cardiac, pulmonary, hepatic, renal or cutaneous inadequacy, malarial cachexia, as well as the general and undefinable tissue degradation due to intemperate habits, are the chief personal elements which determine inability to sustain high degrees of external heat. There is undoubtedly a rapid fabrication of some deadly organic poison, whether salico-lactic acid, as has been supposed, or some other, which paralyses the heat regulating centre, and it is fair to assume that where heat-stroke falls it finds the albuminoids of the tissues in a condition of abnormal molecular instability\*. The well-known immunity of the Chinese, who expose their shaven heads to the fiercest heat of the sun, cannot be exclusively a gradually-developed racial peculiarity, the nature of their food, abounding far less than ours in nitrogenous constituents, must enter into the explanation.

Conditions of the environment conspiring to render heat intolerable are saturation of the air with moisture, and lack of ventilation, the latter becoming of primary importance when several persons are crowded into an insufficient space. As regards sensations of comfort and discomfort, and ability to work without injury or distress under high temperatures, everyone

\* That excessive internal bodily temperature may occasionally be something merely superadded to the essential disease, and may be sustained for a considerable time without a fatal result, appears to be established by many well authenticated cases. See *Lancet*, 1875, i, 340 (122° reached on several occasions in a case of spinal injury in the dorsal region), 1878, ii, 658 (115° 8 in hysteria?), 1878, ii, 728 (107° after measles), 1879, i, 368 (108° in hysteria), 1879, i, 402 (111° after enteric fever), 1879, ii, 270 (116° 4 in hysteria), 1880, i, 641 (117° in hysteria?). Out of a vast number of cases of paradoxical temperature recorded of late years in the medical journals I have selected these as in the recital of each the precautions taken against mistake are enumerated. For a discussion of the whole subject of heat regulation by nervous centres, see VULPIAN, *Leçons sur l'Appareil vaso-moteur*, ii, 232 sqq.

who has travelled in China has learned by personal experience that in the dry atmosphere of the north summer heat which frequently reaches  $104^{\circ}$  in the shade and remains for several hours at or about that elevation is far more easily borne than  $90^{\circ}$  in Shanghai, where the air is laden with moisture

1—When heat-stroke is the product of any combination of these factors, direct and more or less prolonged impact of the sun's rays being absent, the attack may be of comparatively trivial importance or of the deepest gravity. But in either case there is usually time for treatment, and a considerable number of those attacked recover, even when the symptoms have been of the most menacing character

2 and 3—When, however, the sun has been allowed to beat on the head and neck and eyes—especially when, as is usually the case, this occurs during violent exertion in the open air—there appears to be a direct action of the sun's rays on the nervous centres, the victim dying with extreme rapidity from arrest of the heart's action, or after a longer interval from the development of hyperpyrexia, due to paralysis of the heat regulating centre

1—The first form may be regarded as exaggerated simple fever. All the symptoms described under that heading are aggravated. There is profound exhaustion. The temperature rises to  $106^{\circ}$  or higher, the pulse is generally quick and incompressible, in the graver cases slow and labouring. There is commonly an initial excessive secretion of urine with constant desire to empty the bladder, but later on the secretion may be altogether suppressed. There is more or less intense dyspnoea, expiratory as well as inspiratory. The superficial veins are distended. The skin is usually bathed in sweat, which gives a deceptive sensation of coolness to the hand, but it may be dry and pungently hot. The face may be congested or pale. The conjunctivæ are generally injected, the pupils sluggish or insensitive—dilated in the graver cases. There is twitching of the muscles, constant restlessness, and delirium with or without terror. Outbursts of hysterical laughter may alternate with stupor. In all forms severe pain, which may be referred to any of the muscular masses, is an early and constant symptom. When the patient is collected enough to specify more exactly the nature of his sensations he says that everything is swimming or dancing round him, and that there are fugitive dark patches in his field of vision. Every objective sound is intensified, and there is continual subjective bell-ringing in his ears. Headache and thirst torment him. There is a sense of impending death. Recovery is the rule, but convalescence is tedious, interrupted and often unsatisfactory. Loss of memory and melancholia are apt to supervene, and in any case the patient suffers for a long time from sleeplessness at night

2—When in consequence of direct exposure to the sun the heart's action is suddenly arrested, the patient, unless treated immediately and energetically, dies rapidly in collapse with all the symptoms and external appearances of intense shock\*. This is the syncopal form

\* "I was an eye witness to the terrible sufferings of the 98th Regiment on the occasion of the capture of Chinkiang fu, the last military operation of the war in China, under Sir HUGH, afterwards Lord, GOUGH. The regiment arrived at the scene of operations only the day before, having come out from England in an over crowded transport, under the command of an officer at that time without experience in tropical war. The men paraded for action in one of the hottest days of a hot season" (20th July 1842) "dressed as if for a show parade in Hyde Park. They had on landing to take possession of a steep hill of moderate height, before they reached the summit 15 men died on the spot from insolation, 'they gave a few convulsive gasps and died before anything could be done for their relief'"—MACLEAN, *Diseases of Tropical Climates*, p 143

Respiration fails, but dyspnœa is not urgent, the "besoin de respirer" not making itself felt, or manifesting itself only by periodical gasps. The patient is generally unconscious, and urine is suppressed. The pulse is imperceptible, the lips blue, the skin pale or livid, cold, wet or at least moist. It is often difficult to distinguish these cases from the syncopal form of pernicious intermittent fever, when, for instance, a practitioner is called to a patient in a low-class tavern and can obtain no reliable history. In the syncopal form of cholera there is rarely if ever any loss of consciousness. However algid the condition during life may be, there is generally if not invariably, a considerable rise of bodily temperature after death. When judiciously treated such attacks frequently terminate in recovery, and convalescence, though protracted, is usually complete.

3—In the hyperpyrexial form there is rapid invasion of all the symptoms of the first form, but greatly intensified. The special symptoms may develop at once or after some hours, during which there may have been momentary promises of improvement. The temperature of the body rises to 108°, or from that to 111°. The pupils are pin-point, and in fatal cases generally remain so until within a few seconds of death. There may be epistaxis. The skin is dry and pungently hot, the finger-tips are violet. There are often large or small livid patches on the back, sides and calves. The rectum is emptied unconsciously. The lips are often covered with a pink froth, which fills the mouth, pharynx and air passages. Convulsions of an epileptic (sometimes tetanic) character are followed by coma and resolution in which the patient almost invariably dies\*. If the patient seems to improve, fatal relapse is the rule, and if, where the extreme symptoms do not manifest themselves, he finally escapes death, he recovers with some permanent cerebral or spinal damage.

Dr SOMERVILLE,† lately of Foochow, has noted many cases of abortive heat-stroke in which the most important subjective symptoms were vertigo and the feeling of "the train of ideas being interrupted and of one being absent from oneself" for a longer or shorter period. I have myself observed a case in which consciousness of a long drive on an excessively hot summer day was completely abolished, the individual on arriving at his destination remembering nothing from the moment of entering his carriage. Dr SOMERVILLE describes his patients as "staggering and wild-looking, and obliged to catch at some object to prevent falling, the giddiness being usually associated with languor, headache, fever, and often with vomiting and diarrhoea.

In one instance—a seaman—consciousness was lost for a few minutes. The man was copiously drenched with cold water while ice was being procured. Presently he fell into a deep sleep. On waking next morning his ideas were clear, and there was no paralysis of any kind, but he had a severe headache, and was weak and shaky. He was quite well in about a week.

With this abortive form may be linked a chronic form in which the temperature is not excessive. A case of this was reported some years ago by Dr REID, then of Hankow‡

\* Within my experience patients invariably die under the conditions described in the text. At Rangoon, however, in 1852, Deputy Inspector General TAYLOR found that in cases of coma sometimes lasting from one to three hours, and in some instances attended with epileptic fits, not one terminated fatally. (TAYLOR, in *Lancet*, 21st and 28th August 1858, cited by MOREHEAD, *Clinical Researches on Disease in India*, 2nd edition, p 608.) This experience is so exceptional as to be of little or no value in prognosis.

† *Customs Medical Reports*, 2, 35

‡ *Ibid*, xvi, 23

The patient, feeling in perfect health, went out canoeing at 3 P.M. on the 30th July 1878—an intensely hot day—with his head protected with only a straw hat. He returned at 5.30 P.M. exhausted, and complaining of severe headache and feverishness. Next day he attempted to carry on his office work, but had great difficulty in doing so, on account of headache, drowsiness and hazy recollection of things, he also vomited several times after tiffin. July 31st (2nd day) 8 P.M., temperature  $104^{\circ}$ . Tongue covered with thick brown fur. Nausea and occasional vomiting. Face flushed, itching pain in forehead, drowsy and inclined to sleep in short snatches. Bowels not moved for two days. Urination frequent, scanty and with red deposit. A calomel purgative was administered, cold applied to the head, the patient placed in bed under a punkah, and told to take on awakening in the morning 10 grains of quinine. Bowels were moved twice in night. 31st day 8 A.M., temperature  $104^{\circ}$ , 4 P.M., pulse 110, temperature  $105^{\circ}$ , 10.30 P.M., pulse 90, temperature  $103^{\circ}5$ . Ice bag has been applied to the head throughout the day and the body frequently sponged with cold water under the punkah. 30 grains quinine given by enema. The patient has been drowsy and delirious all day, waking when spoken to, but replies irrationally. Puts hand to forehead, wrinkles eyebrows constantly as if in pain. Eyes not congested, pupils normal. Catheter necessary. 4th day very restless during the night, snatches of sleep and then starting up. 8 A.M., pulse 100, temperature  $104^{\circ}$ . Enema of castor oil and turpentine acted freely. Bath at temperature of  $80^{\circ}$ , with douching for 10 minutes, when the skin felt cool. 10 A.M., sleeping quietly, temperature  $102^{\circ}$ . 3 P.M., pulse 96, temperature  $103^{\circ}2$ , again becoming restless. Bromide of potassium, 30 grains, was administered, and repeated at 5 P.M. Does not recognise those near him, replies at random to questions, but when requested puts out tongue. 9 P.M., very restless. Bromide of potassium with chloral, repeated at 10 P.M., induced a quiet night, but there was little sleep. The bowels were moved twice unconsciously. 5th day pulse 88, temperature  $102^{\circ}$ . Very restless, but forehead now cool and skin moist. Constantly muttering and tossing. In afternoon, pulse 104, temperature  $103^{\circ}$ . 6th day 8 A.M., pulse 76, temperature  $100^{\circ}$ . Jerking of extremities, especially of left side. Slept at intervals during the day, but would not reply to questions. Catheter no longer required, as there is involuntary micturition as well as defæcation. 9 P.M., pulse 96, temperature  $101^{\circ}$ . Bromide of potassium with chloral at 10 P.M. 7th day 6 A.M., pulse 92, temperature  $101^{\circ}$ , 11.30 A.M., temperature  $102^{\circ}$ , 4 P.M., pulse 104, temperature  $103^{\circ}$ . Lies in a drowsy state, but takes liquid food readily. Has not spoken for two days. Quinine, grains 30. Ice applied to head. 9.30 P.M., temperature  $101^{\circ}$ . 8th day 7 A.M., pulse 88, temperature  $99^{\circ}4$ . Seems more observant of those around him. 5 P.M., pulse 88, temperature  $99^{\circ}4$ . Answers now in a mumbling manner and incorrectly. Twitching, especially of left arm, and signs of suffering when it is raised. Lifts right arm in shaky tremulous manner to wipe the face. 9th day 8 A.M., pulse 96, temperature  $101^{\circ}$ . Had a quiet night, sleeping at intervals. Quinine, grains 30. 5 P.M., pulse 100, temperature  $101^{\circ}2$ . Won't submit to be turned on side. Skin moist. Slept from 9 P.M. to midnight, and then took a draught of chloral and bromide of potassium and slept till 7 A.M. 10th day 7.30 A.M., pulse 96, temperature  $101^{\circ}$ . Recognises people round him, but wanders when questioned. Two pills of aloes and jalapine were given, one was swallowed and the other chewed without complaint of taste. Tongue projected to right in jerky manner and instantly withdrawn. Spasms now limited to left upper extremity. 4 P.M., temperature  $102^{\circ}$ . 9 P.M., temperature  $103^{\circ}$ . Quinine, grains 30. 11th day pulse 108, temperature  $103^{\circ}$ . Cannot protrude tongue for more than a second, when it is snatched back into mouth, it is dry and brown. When raised a little in bed he cries as if in pain, and there is great tremor and spasm of extremities. A castor oil and turpentine enema acted freely. 8 P.M., quinine, grains 30. Slept quietly till midnight, and then had draught. 12th day tongue moist, pulse 120, temperature  $101^{\circ}$ . Rambling about business. 4 P.M., pulse 120, temperature  $102^{\circ}$ . 13th day quiet night after draught, pulse 100, temperature  $101^{\circ}$ . 6 P.M., pulse 116, temperature  $102^{\circ}2$ . Slept during the greater part of the day, and retains urine. 14th day in forenoon pulse 108, temperature  $101^{\circ}$ . 5 P.M., pulse 116, temperature  $102^{\circ}$ . 9 P.M., pulse 120, temperature  $103^{\circ}$ . When raised in bed there is great tremor of extremities and not the least power

of supporting himself 15th day quinine, grains 30, at 6 A M 8 A M, pulse 96, temperature  $101^{\circ}$  9 P M, pulse 100, temperature  $101^{\circ}$  2. Complains of pain all over body and extremities. Tongue choreic. The temperature ranged between  $99^{\circ}$  2 and  $103^{\circ}$  up to the 26th day, after which it did not overpass normal limits. On the 22nd day he sat up for a short time in bed, but delusions and hallucinations were abundant. On the 27th day questions were answered with some degree of intelligence. On the 37th day he tried to write his name, but could not form letters or recollect how to spell it. Two days later he wrote his name distinctly. From this date there was a steady improvement in mental symptoms, and the patient left for Europe. The later treatment consisted in occasional large doses of quinine when the temperature rose over  $100^{\circ}$ , a mixture of iodide of potassium and a chloral draught with bromide of potassium when required. It may be added that the patient was a temperate man of good physique and free from constitutional disorders.

The diagnosis of heat-stroke from acute alcoholism is not always obvious.

In October 1874 a fatal case of acute alcoholism occurred in my practice. Had I not been acquainted with the history through many months, and had the final seizure taken place during July or August, I should have been unable to say that it was not a case of heat-stroke. There were present pungent heat of skin, frequent micturition, constant nausea, congested conjunctivæ, lividity of the surface, irregular pulse and respiration, great restlessness, muttering delirium and contracted pupils. Death was due to failure of the heart. Had the atmospheric temperature been high the restlessness would probably have been exchanged for convulsions and coma.

The two conditions are frequently combined. Thus, it was specially noted that in nearly every one of 12 cases of sunstroke admitted to the Shanghai General Hospital in 1872, out of whom eight died, the patient had been indulging freely in alcoholic liquors, these beverages being probably of poisonous quality apart from the alcohol they contained.

The symptoms of heat-stroke in children do not require any special description. As might be expected from the greater predominance of the spinal system in early life, convulsions are of invariable occurrence in severe cases of all forms, they are more likely to be tetanic than in the case of adults, and they are not of such grave prognostic significance. There is occasionally prodromal diarrhœa.

Turning now to the question of treatment.

1.—In the first form all the factors entering into the attack should be considered. The room should be cleared, darkened, and as far as possible cooled and ventilated by opening all the doors and windows and working a punkah, if one is in readiness. Ice should be applied to the patient's head and neck, 15 grains of calomel laid on his tongue, and, if he is conscious enough to drink, iced seidlitz water from which the gas has escaped should be given as a beverage. Meanwhile an enema of 15 or 20 grains of quinine suspended in a couple of table-spoonfuls of milk may be given, and repeated after the bowels have been evacuated.

2.—In synopal cases the patient should at once be removed into a sheltered place, sedulous care being taken to avoid sitting him up or imparting sudden jerks to his body. He should be stripped naked and energetically rubbed with flannel cloths. A subcutaneous injection of sulphuric ether should be given as soon as possible, and meanwhile a mustard plaster or a sponge wrung out of scalding hot water should be applied to the præcordia. A copious enema of iced water should be administered, followed on its expulsion by one consisting of an ounce or two of brandy with 15 grains of quinine mixed with a beaten-up egg.

The patient should be frequently and gently rolled to one side and the other alternately, for the purpose of lessening the chance of complete stagnation of blood in the lungs. These cases require careful watching, as secondary fever is almost certain to occur should the original attack be successfully combated.

3.—Whether the hyperpyrexial form declares itself immediately or after a longer or shorter interval, the obvious and urgent danger to life lies in the intensity of the bodily heat. Undivided attention should therefore be directed to lowering the temperature. The patient should be gently but rapidly stripped,—carefully keeping his body horizontal,—and laid on the ground, or preferably on a bamboo couch. Ice should be packed round his head and along his spinal column, cold water dashed over him from a height, while a couple of quarts of iced water should be pumped into the colon, and the enema repeated as soon as the water first administered is expelled. At intervals between the douches fanning should be vigorously kept up by three or four assistants, crowding round the patient being prevented. FAYRER leaves it an open question whether in cases where the imminence of death is clearly due to a distended right heart a moderate venesection may not be called for, but as a general rule the abstraction of blood is disastrous. On the other hand Dr GÉRAUD\* relates some striking instances wherein, in the absence of other means of promoting the circulation, the withdrawal of 10 ounces of blood from men in a desperate condition had an excellent effect. In three cases a further depletion to 7 ounces was necessary, followed in one case by wet cups and leeching. Nine cases are recorded with eight recoveries. The hypodermic injection of ether will help the heart to force on its contents, but here probably, as in cholera, there is speedy formation of some toxic substance which closes the pulmonary capillaries. The douches should be suspended as soon as the rectal temperature falls to 103°.

There is a case recorded by Dr WESTBROOK, of St Mary's General Hospital, Brooklyn,† which he describes as belonging to "the severest type of sunstroke," he had "never before seen so bad a one recover." The subject was a young Englishman, 22 years old, of very robust habit, who, after working out of doors all the forenoon of a day when the thermometer registered 99° F in the shade, became comatose and convulsed after reaching his home at midday. Coma was profound, the bowels had moved spontaneously (unconsciously?) and free vomiting had occurred. The rectal temperature was 109° F. Half a drachm of antipyrin was injected hypodermically and ice was applied to the head. In less than an hour the rectal temperature fell to 107° 5. Cold was applied to the head and body by means of towels wrung out of iced water, and a second dose of ½ drachm of antipyrin was injected. 30 minutes later the rectal temperature was 99° F, when the cold applications were discontinued, dry heat was applied to the surface, and whisky was injected subcutaneously. Shortly afterwards the surface was cool, coma profound, all the limbs twitching, head congested, pupils contracted but responding feebly to light, respiration irregular and accompanied by a loud expiratory groan. Half an ounce of whisky was given hypodermically. Within half an hour the surface became warm, twitching became more marked, and a series of violent tetanic convulsions occurred which were controlled by chloroform. Blood to 13 ounces was withdrawn from the median basilic vein. There were no more violent convulsions, and 40 grains of chloral hydrate was administered by the rectum and retained. The axillary temperature was now 103° 75. Half an ounce of

\* *Archives de Médecine et de Pharmacie militaires*, 1888, II, 23.

† The report is in the *New York Medical Journal*. It is reproduced in the *Indian Medical Gazette* of December 1885, page 394, from which my knowledge of it is derived.



LENTE's solution of quinine\* was injected hypodermically in doses of 1 drachm every two hours. Eight hours after the onset of symptoms, slight convulsions still continuing, six leeches were applied to the temporal region, 20 grains of antipyrin was injected hypodermically, and 40 grains of chloral hydrate administered in enema. Two hours later the patient became sufficiently conscious to partially respond when spoken to. He slept quietly, and next morning his temperature was 99° F, and from that out remained normal. He continued in a state of hebetude until the 3rd day, when consciousness was completely restored. During the 2nd day he had 40 grains of bromide of sodium every two hours and 5 grains of sulphate of quinine every four hours.

The case is interesting as showing from how desperate a condition recovery is possible, but the reporter puts it forward as an illustration of "the use of antipyrin in sunstroke"—a claim which cannot safely be admitted, considering the variety of treatment to which the patient was subjected.

A second successful case in which the symptoms were similar is also reported by the same writer. The rectal temperature was 110° F. The treatment consisted in antipyrin and quinine subcutaneously, ice to the head, whisky and chloral by enema, and bromide of sodium and quinine by the mouth when the urgency of the attack had abated.

To any deduction as to the curative value of antipyrin in this second case the same objection may be made.

It is a question whether inhalations of ether or chloroform should be tried in order to calm the convulsions. Successes so far as the symptom is concerned are on record. I have not ventured on either drug. The condition of the heart has seemed to me to contraindicate chloroform, and if it be true that the pulmonary capillary walls are already in a condition of spasm, the initial effect of the entrance of ether vapour into the alveoli might intensify the apnoea. Besides, the convulsions are probably only symptomatic of (a) cortical irritation from the languid circulation of superheated blood through the cerebral vessels, or of (b) cerebral anaemia from block in the lesser circulation, whereby the controlling action of the brain on the spinal centres is abolished, or of (c) excitation of NOTHAGEL's hypothetical "convulsion-centre" by carbonic acid laden blood. In either case the convulsions in themselves are probably of small moment, the general condition is of all importance.

Should recovery take place, treatment of the sequelae must be conducted on general principles. The patient will probably be obliged to remove to a cool climate, either temporarily or permanently, and almost invariably he retains for his whole lifetime an exaggerated sensitiveness to exposure to heat and to the action of alcohol.

#### CASES OF HEAT-STROKE

*Simplest Form, Ardent Fever* —D, missionary, aged about 45. Had been much exposed to the sun on the 7th August 1878, and late in the evening had retired to a small ill-ventilated room to write letters. About an hour after he had shut himself in he was heard to fall from his chair, and on entering the room his servants found him extended on the floor partly insensible, and making no attempt to rise. He was carefully removed to a cool place and his clothing loosened. When seen an hour later he was nearly insensible, but could be roused to signify that he heard questions, but not to answer them. At intervals he groaned out complaints about his head. His face was congested, lips blue, pupils contracted, his body was

\* I have been unable to ascertain the composition of this solution.

dry, livid in patches and burning hot, his hands and feet were cold. There had been no action of the bowels. Temperature in rectum,  $106^{\circ} 2$ , pulse about 150, but hard, breathing shallow, rapid, not irregular. 15 grains of calomel was laid on the tongue, and a large castor oil and soap enema administered. Ice was applied to the head and spine, and the trunk and limbs were vigorously rubbed with dry cloths. After evacuation of the bowels 25 grains of quinine was thrown into the rectum. Lividity began to disappear from the surface of the body in about half an hour, the hands and feet regaining warmth at the same time, and the pulse becoming softer, though retaining its rapidity. The rectal temperature was still  $106^{\circ}$ . Rubbing was continued, and half an hour later lividity left the lips, and consciousness returned. The rectal temperature was now  $105^{\circ}$ . Ice was kept applied to the head and spine and the patient was left quiet for about 20 minutes, when it was noticed that the breathing, which had greatly improved, was assuming a sighing character. The temperature had risen to  $105^{\circ} 5$ . A long tube was thereupon carried for 10 inches into the rectum and about 4 pints of iced water injected. This roused the patient, who showed manifest signs of resenting the treatment. The water was shortly afterwards expelled, and slight perspiration was noticed on the chest at the same time. No further treatment was necessary. The temperature fell steadily to  $100^{\circ}$  within two hours. Consciousness was completely regained, and a very copious and horribly offensive stool was discharged. Sleep was disturbed for several nights, but convalescence was completely established within a week.

*Transition Form, wild Delirium*—W, female, aged 30, missionary. Had been shut up for a couple of hours in a hot, filthy, and crowded room with a dying Chinawoman early in August 1884, after which she walked home—a distance of about a mile—at 3 in the afternoon, sheltered by an umbrella, but without coloured glasses. Malaise all the evening. At night burning skin, restlessness, delirium, intense muscular pain. Seen at 4 A.M. Temperature in axilla,  $106^{\circ} 2$ . Skin moist, expression wild, face pale, lips colourless, jugular veins distended. Complaint chiefly made of intense headache. The pulse was hardly perceptible, and was intermitting. The catamenial period was a week overdue, but this was a common occurrence. A hypodermic syringe of ether was injected, ice was applied to the head and neck, an enema of castor oil administered, followed by an enema of iced water carried high into the bowel. The water was retained about 20 minutes, and after its expulsion a small enema of milk containing 20 grains of quinine was given. At 8 A.M. the temperature as registered in the axilla was  $104^{\circ} 6$ , but was probably at least  $1^{\circ}$  higher, dyspnoea was intense, skin dry, maniacal delirium. The greater part of the patient's hair was cut off, she was carefully removed to a couch on the verandah, and her head and neck doused with cold water. The surface was now livid. Large and small bubbling râles were audible all over the chest. She was energetically rubbed with bath gloves, and a current of iced water kept running through the lower 12 inches of the rectum. Ether injection repeated. After an hour of this treatment she became rational, and asked to be put back into bed. All lividity had left the surface. Respiration was much easier, 30 in the minute. The temperature in the axilla, which had been carefully dried, was now  $102^{\circ} 8$ . Immediately on removal to bed she passed a considerable quantity of urine unconsciously. The quinine enema was repeated. At 3 P.M. the temperature had fallen to  $101^{\circ}$ , respiration to 24, and the pulse was full and soft. Both eyelids were much ecchymosed. Recovery was very slow, and for several months the patient's friends observed an irritability of manner and subdued excitement which were foreign to her character. She eventually returned to Europe, where she arrived perfectly well.

*Syncopal Form*—L, missionary. Had been ailing indefinitely on the 8th July 1889, an exceptionally hot day (temperature  $100^{\circ}$  in the shade), but felt well enough to walk in the open air in a large paved and unsheltered courtyard during the following forenoon. He suddenly became insensible and fell. Ice was applied to his head while assistance was summoned. When seen very shortly afterwards he was breathing stertorously and was pulseless. Suddenly he became livid, and before any treatment could be instituted he was dead.

*Hyperpyrexial Form*—A lady, aged 24, was confined at term of her second child on the 6th August 1874, and made an excellent recovery. She went out in a sedan-chair on the 18th day, and continued to do

so regularly until the 22nd day. She was perfectly well in the afternoon of that day (28th August), and went out earlier than usual—about 4.30. It was subsequently recollected that she complained of the intense heat while out, had made some incoherent remarks, and that for a while her lips had been of a leaden hue. On her return home she walked upstairs unassisted. She retired at 9 P.M. and slept till midnight, when she woke and continued restless until 4 A.M., passing much time in the meantime. At 4 A.M. she asked for and drank a glass of milk and soda water. She then went to sleep. At 7.30 A.M. she woke, but evidently failed to recognise anybody. At 8.30 A.M. I found her in a room with the doors and windows all shut and the air intensely hot and foul. She was lying on her back, snoring deeply, with respiration greatly accelerated, cheeks flapping during expiration, fauces full of mucus, conjunctivæ insensible, no strabismus, pupils contracted and insensible to light, face pale, lips livid, no distortion of mouth, skin of trunk livid and burning, feet cold, hands cool, complete resolution of limbs, no twitching of tendons, could be very slightly roused. Pulse running, with distinct pauses. In the axilla, not tightly pressed, the mercury went up in a minute and a half to  $110^{\circ} 4$ , the limit of my thermometer, the internal temperature was therefore certainly not less than  $112^{\circ}$ , and was probably higher. She was placed in a bath in which lumps of ice were kept floating and drenched with iced water, while the surface of the body and limbs was energetically rubbed. No effect, however, was produced. Coma gradually deepened, and she died at 11 A.M.

*Heart Failure on Movement*—S, about 45 years old, merchant. Seen at 1 A.M., 2nd August 1886. The temperature of the air had been extremely high for some days. Had felt ill through previous afternoon, but had insisted upon lying on a very hot, ill-protected verandah. About 11 P.M. he had gone into his room and seated himself in a chair, where he was supposed to have gone to sleep. At midnight it was noticed that he could not be roused. I found him propped up in a chair, deeply comatose, blue, pulse hardly perceptible, breathing stertorously, cheeks flapping, skin burning, pupils moderately dilated, insensible to light. He had vomited and had had an involuntary evacuation of the bowels. The case was probably hopeless, but there appeared to be no reason why immediate death should occur. The room in which I found him was crammed with furniture, and every available spot was crowded with Chinese and half-castes, who could not be expelled. The air was indescribably hot and foul. It was obviously necessary to move him to a more suitable place, but in the act of carrying him one of the coolies employed allowed his shoulders to slip, so that his body was violently and suddenly jerked. There were one or two spasmodic gasps, and life was extinct.

*Tonic and Clonic Convulsions in an Infant*—F, female, 2 years and 9 months old, was carried into the sun by an amah early in the afternoon of a hot September day in 1883 and kept unsheltered for about an hour. The child vomited, which drew the amah's attention to the fact of its being ill, and when brought into the house it was found to be unconscious. General convulsions supervened within half an hour. When seen, exactly an hour from the occurrence of vomiting, the infant was deeply unconscious, convulsions were continuous (in this sense, that between each violent fit the muscles did not relax), the skin was dry and pungently hot, and the temperature in the rectum was  $108^{\circ} 5$ . The rectum had been emptied at the beginning of the attack. The pulse could barely be felt as a flutter, and the pupils seemed to be contracted, but could hardly be got into view. The child was stripped naked and laid on a bamboo couch. Ice bags were applied to the head and neck, and cold water was dashed over its body from a height. A thermometer was retained in the rectum and read every five minutes. Within 20 minutes the temperature had fallen to  $105^{\circ}$  F, and relaxation between the convulsions was observed. The douches were thereupon stopped, a light blanket was thrown over the body and a large enema of iced water administered. This brought away a copious evacuation containing a dead lumbricoid worm. The enema was then repeated, and retained for 10 minutes by occlusion of the anus. 15 minutes after its escape the temperature in the rectum was  $101^{\circ}$ , the convulsions had ceased, and the child began to show signs of returning consciousness. Its body was now rubbed dry, a sinapism the size of a

dollar was laid over the base of the heart, and 5 grains of quinine in a teaspoonful of milk thrown into the rectum. A teaspoonful of whisky was given in 5-drop doses every quarter of an hour. After the third dose attempts at swallowing were made, and it was then given diluted with water. Four hours from the commencement of the attack the child was sufficiently conscious to indicate that she wanted to be put into bed. The pulse could be counted, and its beat was regular, the temperature in the rectum was then 100°. The night was restless. Next day the temperature had fallen to 99°, and for more than a fortnight it fluctuated between 99° and 101°. Convalescence was then slow and unsatisfactory, and removal to cooler air than could be found in Shanghai was imperative. It was not until after a trip to Chefoo and the advent of autumn that health was thoroughly re-established.

*Tetanic Convulsions in a Child*—J, male, aged 4, was missed from his nursery one July afternoon in 1878 and was discovered partly insensible crouched outside one of the bamboo blinds of a southern verandah. How long he had been exposed to the sun was not ascertained. On being removed to a couch he vomited and immediately became unconscious, and within a few minutes convulsions of tetanic character declared themselves. The lower bowel had emptied itself. Ice had already been applied to his head when I saw him half an hour later. The child was breathing stertorously and irregularly, lips blue, face white, skin dry, livid, and pungently hot, pulse imperceptible. The act of stripping him brought on a violent tetanic spasm, opisthotonos being well marked. He was immediately douched, and an ice bag applied to the spine. The temperature could not be ascertained, as an attempt to introduce a thermometer within the anus induced a spasm of terrific violence of the whole body. Vigorous rubbing of the surface with bath gloves dipped every now and then into iced water did not induce convulsion. After about 20 minutes the skin of the trunk had regained its natural colour. The child was now covered with a light blanket and a thermometer successfully introduced into the rectum. The temperature was 106°. It was at once withdrawn, and a large enema of iced water administered and retained for 10 minutes by pressure on the anus. A slight general convulsion expelled it along with a considerable quantity of faecal lumps. The breathing was now regular, but rapid and shallow. Large moist râles were audible everywhere in the chest. The heart was beating 180 to the minute with considerable force, but the radial pulse could be felt only as a mere flutter. Nothing more was done for half an hour. There were no convulsions, though the fingers and toes twitched frequently, the lips were gradually losing their lividity, and respiration was gaining in volume. Unconsciousness was still absolute. The temperature in the rectum at the end of this half-hour was 103°.8. The child was now rubbed dry and wrapped in a blanket. An enema of 20 grains of bromide of sodium with 10 grains of bromide of quinine was administered, and whisky in doses of 10 drops was poured on the tongue every 10 minutes. An hour later consciousness began to return, and about six hours from the beginning of the attack all immediate danger was over. Convalescence was protracted, but was apparently perfect after a prolonged change to a cooler climate.

This child remained for four years under observation, and has since been frequently heard of. He suffers from no mental defect, but he is extremely sensitive to heat and glare, the least exposure to either bringing on intense headache. He is irritable and has paroxysmal attacks of sleeplessness.

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CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1888.

36th Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,  
AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON F S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1890

[Price \$1]



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

*a*—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death.

*b*—Diseases prevalent at

*c*—General type of disease, peculiarities and complications encountered, special treatment demanded.

*d*—Relation of disease to  $\left\{ \begin{array}{l} \text{Season} \\ \text{Alteration in local conditions—such as drainage, etc} \\ \text{Alteration in climatic conditions} \end{array} \right.$

*e*—Peculiar diseases, especially leprosy.

*f*—Epidemics  $\left\{ \begin{array}{l} \text{Absence or presence} \\ \text{Causes} \\ \text{Course and treatment} \\ \text{Fatality} \end{array} \right.$

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.



3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officers at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Di \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons.

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I am, etc,

Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Takow,*  
*Kuikiang, Amoy,*  
*Chinkiang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, 1st November 1890

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Hoihow (Kungechow) for the year ended 30th September 1888, pp 1, 2

Report on the Health of Chinkiang, pp 3, 4,

Report on the Health of Shanghai, pp 9-39, each of these referring to the half-year ended 30th September 1888

Report on the Health of Newchwang for the eighteen months ended 30th September 1888, pp 5, 8

Clinical Studies of disease as observed in China, pp 40-56

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
*PEKING*

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The Contributors to this Volume are —

J. H LOWRY, L R C P E d, L R C S E d	. . . .	Hoihow (Klungchow)
J A LYNCH, M D, C H M	. . . .	Chinkiang
W MORRISON, M B, C H M	. . . .	Newchwang.
R A JAMIESON, M A, M D, M R C P	. . . .	Shanghai

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## ERRATUM.

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In vol xxxv

Dr CHARLES BEGG's Report on the Health of *Hankow* for the year ended 31st December 1887 was inadvertently placed under the heading of *Chefoo*, and was attributed to Dr W A. HENDERSON.

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## DR J H LOWRY'S REPORT ON THE HEALTH OF HOIHOW (KIUNGCHOW)

For the Year ended 30th September 1888

DURING the year there were few cases of serious sickness, and until May of this year the general health of foreign residents was fairly good

The winter was exceedingly mild, and the hot season set in early, most persons were wearing white clothes before the middle of March. This past summer has been very trying to everyone, both the days and nights have been hotter than during the two previous summers. Those who have not succumbed to sickness have not the climate to thank, but their own good constitutions.

Since May there has been a good deal of general sickness, chiefly malarial fevers, bowel complaints and congested livers. Nearly all the cases of fever have been of the remittent type, and some proved very obstinate. A case of dysentery from Pakhoi yielded to the usual treatment by diet and ipecacuanha. During May and June many natives were said to have died from bowel complaints, but I have no authentic information as to the number.

The Mission Hospital at Kiungchow has been closed since March last, owing to the absence of Dr McCANDLISS, so I have been unable to obtain information from that institution as to the general health of the natives during the summer.

The neighbouring port of Pakhoi has been for some time without a doctor, and it has been necessary for me to make several trips over there, but there has been no sickness of a serious nature. There, too, a hot summer has been experienced.

Through the winter a severe epidemic of small-pox prevailed at Hongkong, but no cases were heard of at this port. I re-vaccinated all the Customs staff as a matter of precaution.

*Cranotomy* —Late in the night of 24th November, I was asked if I would go and see a native woman who had given birth to the body of a child but not to the head. The woman I found, much exhausted, lying on the floor of a small hut, with the body of a dead child already expelled. The body I was told had been born 24 hours, every effort on the part of the Chinese midwives and friends had been made to bring down the head, without avail. I had the woman lifted on to the bed, and tried to apply BARNES' forceps, but the parts were so swelled I found it impossible. Accordingly, after administering stimulants and chloroform I perforated the head in the usual way. There was almost no hæmorrhage, and the placenta was extracted without difficulty. The uterus was carefully washed out with a weak solution of iodine in water. The woman was fed on strong beef-tea and soups, and stimulants were administered freely, but in spite of all our attention she died on the 27th, the shock having been too much for her constitution. This was not a case of hydrocephalus, had anyone seen it in time, there is no doubt that the head could have been brought down without difficulty. The attendance on this case was rather unfortunate for myself, for I subsequently suffered from a severe attack of blood-poisoning,

septic matter having gained access to my system through some neglected scratches on my right hand To Dr McCANDLISS, of Kiungchow, I am indebted for his skill and untiring attention to me during my long sickness

*Case of Paraphimosis* — A native lad, æt 12, was sent to me by the Rev Mr GILMAN, of Kiungchow, suffering from paraphimosis His friends who accompanied him were much distressed, as they feared the penis would recede inwards, and that he would die An evaporating lotion was applied on lint to the penis, and subsequently the paraphimosis was reduced without much difficulty

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Custom House, KIUNGCHOW, for the Year ended 30th September 1888 Latitude  $20^{\circ} 3' 13''$  N, Longitude,  $110^{\circ} 9' 3''$  E

MONTH	WIND							BAROMETER		THERMOMETER		No of Days Fog	No of Days Rain	Rainfall
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	Highest	Lowest	Highest	Lowest			
1887							Miles	Inches	Inches	°	°	D h	D h	Inches
October	26	1			4		3	30.22	29.87	84	70		1 0	5.3
November	29				1		4	30.30	30.00	79	62	2 0	2 0	0.8
December	28	2			1		4	30.40	30.04	74	58	3 0	3 0	1.1
1888														
January	18	6			7		4	30.38	30.00	78	52	6 0	2 0	1.3
February	16	4	1		8		3	30.45	29.94	83	48	7 0	4 0	1.0
March	9	10	1		11		3	30.27	29.90	89	63	5 0	3 0	3.6
April	5	13			12		4	30.12	29.78	93	69	3 0	1 0	6.4
May	4	16		1	10		3	30.10	29.72	94	76	1 0	1 5	5.3
June	3	7	2	3	15		2	29.92	29.61	93	76		1 1	3.2
July	5	8	2		16		3	29.92	29.54	92	76		1 3	7.8
August	1	3	4	2	21		3	30.01	29.65	90	76		1 20	3.6
September	13	5		2	10		4	30.08	29.54	89	75		1 22	8.4

# DR J A LYNCH'S REPORT ON THE HEALTH OF CHINKIANG

For the Half-year ended 30th September 1888

## ABSTRACT of METEOROLOGICAL OBSERVATIONS

MONTH	BAROMETER		THERMOMETER			RAINFALL	
	Max.	Min	Max.	Min	Mean	Quantity	No of Days
1888	<i>Inches</i>	<i>Inches</i>	°	°	°	<i>Inches</i>	
April	30 65	29 65	74	42	58	4 93	7
May	30 17	29 63	93	48	70	0 69	5
June	29 81	29 62	94	61	78	2 02	6
July	29 80	29 60	98	66	82	4.45	6
August	29 80	29 55	96	75	85	0 36	2
September	30 40	29 70	94	63	78	1 01	4

The weather during the first three months was fine and mild, with moderate rainfall. Early in June, however, a drought of exceptional severity and duration set in, lasting till the middle of September. A great portion of the rice and other crops was ruined, and much destitution will be the result.

The general health of foreigners in the port has been fairly good. No deaths occurred. The diseases were of the usual type, malarial affections and diarrhoea predominating. Of intermittent fever, nine cases occurred, most of them yielding readily to quinine. One case, in a child of 3 years old, was very intractable, the attacks recurring again and again at intervals of a few weeks. A trip to Japan was advised, and resulted in marked improvement.

An unusually severe epidemic of cholera prevailed among the native population during the summer months. Several Chinese resident in the Settlement were attacked, but no foreigners. Cases of cholera or "summer diarrhoea" were, however, by no means infrequent among the latter, 13 occurring during the months of July, August and September.

The drainage of the port has for many years past been in a most unsatisfactory condition. The whole sewage of a densely populated and filthy Chinese suburb, some eight or nine square

miles in extent, is poured into the main drain of the Settlement, a small channel about three feet in diameter. Stagnant, putrefying organic matter accumulates in this channel, which no efforts can keep clean, and sewer gas is from time to time most unpleasantly *en évidence* in the atmosphere both of streets and dwelling-lots. Viewed in connexion with this state of affairs, the good health so long enjoyed by Chinkiang residents is not a little surprising. The matter is, however, at last being considered by the Municipal Council, and there is reason to expect that measures will shortly be taken for the removal of this dangerous nuisance.

After small-pox and cholera, the affections most prevalent among the Chinese are malaria, syphilis, and diseases of the skin and eyes. Severe conjunctivitis is common, and as the patient is usually seen in a late stage, after having been treated by a native practitioner, the cornea is often found in a sloughing condition. Sufferers from malaria are prone to take refuge in the opium pipe, and roundly assert that it gives them immediate relief.

A hospital for Chinese is much needed

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## DR W MORRISON'S REPORT ON THE HEALTH OF NEWCHWANG

For the Eighteen Months ended 30th September 1888

DURING the period under review the conditions of life have been favourable to health and to the commercial prosperity of the town and district. There is no record of cholera or other formidable epidemic either among the foreign residents or the native population.

A meteorological table, with special remarks regarding the year ended 31st March 1888, will be found at the close of this Report. The six months ended 30th September call for some additional remarks.

Periods of drought and flood have alternated. The dry period extended from the beginning of April to the 13th July, during which time we were only favoured with a few tantalising showers. During the latter part of that time processions, with drums, flags and branches, thronged the temples, and special days were by official decree devoted to the propitiation of the presiding deities. Dry heat and dust, with the retardation of vegetable growth, were among the discomforts, but their influence on the water supply was of greatest sanitary importance. Surface drainage into ponds, and wells two to three miles distant, are the ordinary sources of water supply. The ponds were all dried up, and water for drinking and other domestic purposes had to be brought in boats and carts from a distance, the river water being unserviceable owing to its saltness. This afforded the usual field for jobbery—not by any means peculiar to water purveyors,—and constant supervision was required to keep the quality up to the mark. A pipe or conduit connecting the town with the river above that point where the water ceases to be salt—a distance of some 20 miles—would be a priceless boon to this community.

During the second week in August the district was visited by a flood of unusual magnitude, resulting in the destruction of some of the foreign buildings, and threatening the very existence of the Settlement. On either bank of the river inland there was the usual tale of loss of crops, property and human life. The native authorities and merchants have bestowed themselves to lend a helping hand, and the foreign residents here, with the assistance of friends at a distance, have subscribed a large sum for relief. Two foreign deputations have already been sent with relief to the inundated district, and further assistance will be given during the winter.

To be compelled to seek refuge from a falling house at a critical period in their history was the experience of one family here, but fortunately without detriment to health.

Perhaps one of the most noteworthy phenomena connected with the floods is their effects upon our gardens. The garden here is much prized, not only as a source of food supply but also for the refreshing change it affords to the eye wearied with the monotony of the plain and the bleakness of the long winter. During the rains, if the water fails to get exit from the garden it soon becomes flooded, and if this water be allowed to lie upon the garden for half a day or more, it is followed by the destruction of the greater number of vegetables and certain



varieties of trees, shrubs and flowers. The peach, apricot, lilac, elderflower, dahlia, are destroyed, while the apple, pear, plum, acacia, pomegranate, are not affected. It has been suggested as a reason that the superincumbent water penetrates into that deep part of the soil from which cultivation has not removed the original saline ingredients, the water so becoming charged with salts that are inimical to the existence of many species of plants. Possibly the mechanical loosening of the roots may have something to do with it, the finely comminuted particles of which the mud consists being reduced to a pasty consistence.

There have been seven births—five males and two females, healthy and well-developed, with one exception,—

In which case the uvula was absent, and the soft palate imperfect. The mother of this child suffered from parametritis during the greater part of the period of pregnancy. There was some anxiety with reference to her confinement, but the labour was accomplished without any special difficulty.

There have been five deaths on shore and one on board one of the gunboats in harbour. These were as follows —

Typhus	1
Fatty heart	2
Softening of brain	1
Diarrhœa	1
Dysenteric diarrhœa	1

Two cases of typhus have occurred.

One case was that of a previously healthy, muscular man, aged about 34. Death took place on the fourth day, the fever being of that virulent type which affords little scope for treatment.

The other case was that of a male, aged about 40. In May 1887 he was deputed to visit and convey relief to the district which had been inundated during the previous autumn (1886), poverty and distress being still found among the people. Trusting to energies recruited by a recent holiday in England, he exhausted himself by over-exertion and imperfect nourishment. He returned in a languid condition, and it became a case of typhus of well-marked severity. Temperature at no time caused anxiety, but there was threatening of cardiac failure from near the commencement. By an early and liberal exhibition of alcohol, this danger was averted. The crisis was reached on the thirteenth day, and so great at that time was the prostration that for some hours a teaspoonful of water could not be swallowed. This patient has, notwithstanding, made a good recovery.

This is the second case of fever contracted while visiting the distressed districts. The former one—though not mentioned in these Reports because treated at Moukden—resulted in the loss to this community of a much-esteemed missionary in the prime of life. There was also in his case a history of exposure to hardship which might have been avoided. Fever there, as elsewhere, follows in the wake of famine. Only the strong and vigorous should undertake such duties, and then fatigue should be avoided, and care taken to have a plentiful supply of strengthening food.

Much additional light would have been gained, in the two cases in which death is ascribed to fatty heart, had postmortem examinations been granted. Without this aid the condition of the cardiac muscular fibre, as to degenerative change, must be matter of speculation. In both cases there was a history of cardiac neurosis extending over years.

The first, a female, aged 38, had typhus fever four years before. As an after result she suffered from nervous attacks, which I described in these Reports at the time as a cardio-respiratory neurosis.

These attacks returned at varying intervals of time. During the intervals she was subject to dyspepsia, and had but indifferent health. Mental depression, due to successive bereavements and financial loss, latterly tended much to increase the frequency and severity of the attacks.

At 5 A M one day I was called to see her. I found her insensible. There were violent palpitation and quickened breathing. Through the constant use of stimulants—chiefly external cold and friction—for about an hour, the nerve disturbance subsided. Called at 1 P M, found her out of bed, dressed, and able to converse freely. At 4 P M, was summoned again to witness a second attack. Death, due to failure of heart, took place a few minutes after my entrance.

Bromide of potassium in combination with digitalis I found of considerable service in the treatment of this case.

The other case was that of a male, aged 55, who had been a muscular man. He had suffered for years from occasional paroxysms of anginal pain. The heart was dilated, but no valvular lesion could be detected. There was strong suspicion of aneurism, although the direct symptoms were absent. The vessels were atheromatous. He was confined to bed for some months and to certain positions of the body. Death was not sudden. For a week before the event he sank gradually.

#### Death due to softening of brain —

A B, a female, aged 38, suffered from chronic dyspepsia. She had a fall from a pony while riding. As the result, she complained of some pain in the breast and head. There was no external evidence of any serious injury. Five weeks after, the following symptoms were developed (extracts from notes written at time) —

13th August — Was called in by patient's friends to see her. They stated that she was asleep, but the sleep appeared very profound. Examined her eyes and pulse, and talked loudly, but she did not wake.

15th August — Find there is paralysis of the arm, on the side opposite from the side of the head on which she struck when she had a fall five weeks ago. There is paralysis also of both lower extremities, of the bladder, and of the rectum.

The only movement she has made the last three days is putting the right arm—the sound one—up to the right side of the head at long intervals. She is completely unconscious, and cannot swallow, a little milk goes down with great difficulty. There is no hope of recovery, since the attack has come on so long after the cause. The concussion has been succeeded by a slow-forming clot from hæmorrhage, or more probably by softening of the cerebral structure. Death took place two days after.

These notes show the nature of the case, and illustrate what has been before observed,—that from apparently trivial accidents such serious lesions may arise.

Among the surgical cases that have engaged my attention were the following — An artillery accident, rendering necessary an amputation of right arm immediately above the wrist-joint. A gunshot accident, calling for amputation of middle finger and portions of fore-finger and thumb, right hand.

A more interesting case was that of a soldier who in a fight with some other soldiers, received a sword cut, extending from a point corresponding to the inner aspect of the internal tibial tuberosity of the left leg, outwards and upwards for a distance of  $4\frac{1}{2}$  inches, and laying open the knee-joint to the extent of  $1\frac{1}{2}$  inches. He was in the hands of the native fraternity for three days, but not satisfied with their treatment, he was sent on to me. After cleansing, the limb was rested on a MACINTYRE splint, and the joint encased in ice. Suppuration, nevertheless, ensued, extending not up into thigh but down into the leg. An incision  $1\frac{1}{2}$  inches under the inner termination of wound gave exit to a large quantity of pus. The leg was swollen and cedematous. Tinctura ferri perchloridi, painted on the limb and given internally, was helpful. There was much irritative fever during the suppurative process, and amputation was at one time contemplated, still, by the use of quinine and iron and careful nursing, he eventually recovered, and has regained perfect use of the limb.

I am indebted to Messrs STEVENS and ARMOUR for assisting me with the following table —

METEOROLOGICAL TABLE for the Eighteen Months ended 30 September 1888

MONTH	ANEROID BAROMETER		NO OF DAYS ON WHICH THE TEMPERATURE FELL BELOW (FAHR)							NO OF DAYS ON WHICH THE TEMPERATURE ROSE ABOVE (FAHR)					No of Days on which Rain fell	Total Amount of Rainfall	No of Days on which Snow fell	No of Days on which there were Dust-storms	No of Days on which High Winds blew
	Highest	Lowest	-15°	-10°	0°	10°	20°	32°	50°	60°	70°	80°	85°	90°					
1887																Inches			
April	30 36	29 48						5	23	13					2	0 3		2	6
May	30 36	29 64								15					9	3 2			1
June	30 12	29 54										18	6		8	3 1			
July	30 18	29 52										27	4		4	1 4			6
August	30 14	29 58											10	1	11	7 6			
September	30 34	29 82									19	3			4	1 8			7
October	30 56	29 70						2		19	3				3	1 3			2
November	30 62	29 90					12								3	0 7		2	4
December	30 72	30 00	1	2	10	18											1	1	1
1888																			
January	30 82	30 02	1	2	7	24											1	3	4
February	30 70	30 34	1	4	14												5		1
March	30 62	29 94				1	10	23									4	4	8
April	30 80	29 75							12	18							1	2	
May	30 32	29 40							1	14	14	2			2	0 4		2	2
June	29 98	29 54								1	13	16			5	0 7			2
July	29 99	29 68										26	3	2	6	9 3		1	4
August	30 12	29 36									14	7	8	2	12	21 6			1
September	30 40	29 85							8	7	15				5	2 5			

REMARKS — The summer of 1887 was very fine, although much warmer than usual. The winter was not very severe in general, but the thermometer remained throughout very low. At Kirn (some 800 *ls* north of this port) the thermometer registered as low as 38° below zero (Fahrenheit). Very little snow fell until February, and even then not in any quantity. The river was frozen over early (26th December), and did not break up completely until 21st March. In February the ice was about 28 inches in thickness (thus opposite the Custom House). The barometrical pressure was much higher than last year. Winds prevailed in June, July, August and September, NE winds prevailed in April, May, January and February, during the remaining months, about equal.

# DR. ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 30th September 1888

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the SIX Months ended 30th September 1888 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  $8^{\text{h}} 5^{\text{m}} 45^{\text{s}}$  \*

DATE.	Barometer at $32^{\circ}$ F	THERMOMETER		Amount of Vapour in the Air per Cubic Foot	Diurnal Mean Hu- midity, 0-100	Diurnal Mean Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	REMARKS
		Diurnal Mean Tempera- ture in Shade	Extremo Tempera- ture in Shade								
1888	Inch	$^{\circ}$ F	$^{\circ}$ F	Grains			Miles		Inch	Inch	
April	{ Max	30.416	66.7 (27)	77.2 (27)	0.8861	89.0 (5)	17.0 (30)				27 days of rain. Storms on the 22nd, 25th and 28th
	{ Mean	29.947	56.5		0.8476	80.3	13.3				
	{ Min	29.510	43.6 (2)	34.2 (3)	0.6366	63.5 (1)	9.5 (11)	12.2	N $78^{\circ}$ 1 E	2.473	
	{ Range	0.906	23.1	43.0	0.1498	25.2	7.5			2.304	
May	{ Max	30.203 (3)	79.3 (31)	93.2 (30)	0.8252	89.5 (7 & 8)	17.7 (1)				Rain fell on the first 8 days of the month, and there were 6 days of rain subsequently
	{ Mean	29.831	66.7		0.8016	74.5	11.5				
	{ Min	29.471 (16)	51.3 (3)	39.9 (3)	0.3090	58.0 (25)	7.0 (30)	12.2	S $46^{\circ}$ E	3.970	
	{ Range	0.732	28.0	53.3	0.5162	31.5	10.7			2.197	
June	{ Max	29.889 (30)	82.9 (12)	96.4 (12)	1.0323	93.5 (24)	17.3 (7)				12 days of rain distributed evenly through the month. There were no thunderstorms, lightning was once observed in the western sky
	{ Mean	29.707	72.5		0.8761	79.1	12.1				
	{ Min	29.432 (25)	66.0 (3)	55.9 (1)	0.3983	61.3 (1)	8.0 (13)	12.6	S $70^{\circ}$ 9 E.	3.324	
	{ Range	0.457	16.9	40.5	0.6340	32.2	9.3			3.371	
July.	{ Max	29.896	86.1 (31)	98.6	1.0375	92.2 (1)	16.0 (1)				Heavy rain during the first 5 days, 4 showery days subsequently. Thunderstorms on the 4th and 12th, lightning in the north west on the 27th
	{ Mean	29.652	81.9		0.9925	80.2	7.1				
	{ Min	29.433	71.5 (3)	68.5	0.9851	73.6 (27)	3.0 (19)	12.9	S $42^{\circ}$ 7 E	3.832	
	{ Range	0.463	14.6	30.1	0.0524	18.6	13.0			3.730	
August	{ Max	29.879	86.4 (20)	94.6	1.0191	87.9 (7)	13.0 (7)				On the 7th a typhoon from the east passed a few miles south of Shanghai. Thunderstorms on the 22nd and 31st. Rain fell on 13 days
	{ Mean	29.686	82.0		0.9934	80.1	6.1				
	{ Min	29.122	78.7	73.0	0.899,	74.7 (18)	3.0 (27)	17.2	S $67^{\circ}$ 6 E	4.080	
	{ Range	0.757	7.7	21.6	0.1198	13.2	10.0			2.213	
Sept.	{ Max	30.238	83.2 (4)	93.2 (4)	1.0877	86.5 (15)	10.7 (19 & 27)				8 days of rain. Thunderstorms on the 4th and 19th
	{ Mean	29.959	73.4		0.8256	75.0	7.9				
	{ Min	29.680	66.5 (30)	58.8 (25)	0.4761	65.8 (14)	4.7 (1)	11.4	S $33^{\circ}$ 2 E	3.516	
	{ Range	0.558	16.7	34.4	0.6116	20.7	6.0			6.321	

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich

NOTE.—The figures in parentheses indicate the days on which the observations to which they are appended were made, under the headings "Diurnal Mean Temperature in Shade" and "Humidity" they indicate the days on which the mean readings were respectively highest and lowest. The monthly barometric means are deduced from four daily observations recorded in the local newspapers. The monthly thermometric means are deduced from the daily maximum and minimum, half the sum of which is taken as the mean for each day. The amount of watery vapour in the air is not observed directly. It has been assumed as an approximation that the amount is a maximum or minimum for a given period when the ratio of the tension of the ambient air to that of dry air reaches its maximum or minimum. The mean humidity is deduced from two daily observations made respectively at 4 A.M. and 4 P.M., the mean of the daily means being taken as the monthly mean. The mean direction of the wind is deduced from two daily observations made at 4 A.M. and 4 P.M. respectively.

For the abstract on the preceding page I am indebted to the Rev Père CHEVALIER, S J, Director of the Zikawei Observatory

Up to August the summer was wet, and storms were of frequent occurrence in April, July, August and September. The weather was persistently hot from the beginning of July to the middle of September, the mercury reaching at least 90° on almost every day in August. At Zikawei the lowest temperature registered was 34° 2 on the 31d April, and the highest 98° 6 on the 12th July. In the settlements the lowest temperature was 38° on the 31d April, and the highest 98° on the 12th July.

The minimum and maximum temperatures respectively for April were 38° on the 31d, and 78° on the 27th, for May, 47° on the 3rd, and 92° on the 29th, for June, 58° on the 31d, and 95° 5 on the 1st, for July, 68° 5 on the 6th, and 98° on the 12th, for August, 74° on the 7th, and 95° on the 1st, for September, 60° on the 30th, and 95° on the 4th. Autumn, with cool nights, set in about the middle of September.

Judging by my own case-book, the diseases chiefly observed during the summer half year were (excluding cholera) dysentery (rare before July), simple and inflammatory diarrhœa, bronchial catarrh, hepatic congestion, neuralgia and muscular rheumatism, tonsillitis, conjunctivitis, boils, intermittent fever, remittent and typhoid fevers (the former rare), and among children, pertussis, which was epidemic up to the end of July, varicella and worms—mainly *Ascaris lumbricoides*, but I happened to meet with two cases in which the parasite was the (here) comparatively rare *Oxyuris vermicularis*. Of course, there was the usual full contingent of patients suffering from syphilis in all its stages, simple sores, gonorrhœa with its sequelæ, and alcoholism.

Eight cases of cholera were admitted to the General Hospital, out of whom six died, a mortality of 75 per cent. They were distributed as follows through August and September —

August	1st	Fireman (British)	Recovered
"	12th	Mate (British)	Died
"	20th	Man-of-war's man (British)	"
"	22nd	Steward, French mail (Chinese)	"
"	22nd	Man-of-war's man (British)	Recovered
"	27th	Fireman (Arab)	Died
"	27th	Sailor (Finn)	"
September	18th	Policeman (British)	"

It will thus be seen that the disease did not in any way put on an epidemic character among foreigners. I shall revert to the question of cholera when considering the burial returns. The mortality among the natives living in the city, settlements, and suburbs was terrific. This I infer from the strings of funerals which were seen passing along one street—the North Szechuan Road, by the side of the General Hospital—nearly every day, from the number of coffins exposed in the fields bordering the public roads and elsewhere, and often infecting the air in their vicinity, from direct inquiry among the residents in a thickly populated quarter at the north end of the Szechuan and Kiangse Roads, from indirect inquiry among the native undertakers, and especially among those who knock together the rude and cheaper class of coffins, and from personal inspection at the Ningpo and Canton guild-temples. The numbers thus obtained are vague in the extreme, but they suffice to establish the great extent

of native mortality Formal statistics collected from Ti-pao are absolutely valueless They are falsified either designedly or through idle carelessness.

During the period under review there was no contribution of importance to the European or Eastern literature of cholera

BURIAL RETURN of FOREIGNERS for the Half-year ended 30th September 1888 \*

CAUSE OF DEATH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	TOTAL
Scarlet fever			<i>f 1</i>		<i>1†</i>		<i>1</i>
Enteric fever					<i>1‡</i>		<i>1</i>
Remittent fever		<i>1‡  </i>			<i>1‡  </i>		<i>2</i>
Cholera					<i>3† f 1  </i>	<i>1</i>	<i>5</i>
Bright's disease					<i>1†</i>		<i>1</i>
Dysentery		<i>f 1</i>					<i>1</i>
Phthisis				<i>1†</i>	<i>1</i>		<i>1</i>
General tuberculosis				<i>1</i>			<i>1</i>
Septicæmia	<i>1†</i>				<i>f 1†  </i>		<i>2</i>
(						<i>1</i>	<i>1</i>
Hydrocephalus				<i>1  </i>	<i>f 1‡  </i>		<i>2</i>
Convulsions		<i>1  </i>					<i>1</i>
Myelitis				<i>1</i>			<i>1</i>
Alcoholism			<i>1</i>	<i>2 1†</i>			<i>4</i>
"Heart disease"		<i>f 1‡</i>					<i>1</i>
"Cardiac hypertrophy"	<i>1</i>						<i>1</i>
Aortic aneurysm				<i>1</i>			<i>1</i>
Chronic bronchitis			<i>1‡</i>				<i>1</i>
Capillary "		<i>f 1‡  </i>					<i>1</i>
Pulmonary apoplexy		<i>1†</i>					<i>1</i>
Pertussis			<i>f 1‡  </i>				<i>1</i>
Pneumonia			<i>1†</i>	<i>f 1</i>			<i>2</i>
Gastritis	<i>1‡  </i>						<i>1</i>
Stricture of cardia	<i>f 1‡</i>						<i>1</i>
Infantile cholera		<i>1  </i>					<i>1</i>
Peritonitis			<i>1†</i>		<i>1†</i>		<i>3</i>
Hepatic abscess						<i>1 1† f 1</i>	<i>3</i>
Asphyxia	<i>1</i>						<i>1</i>
Purpura				<i>1‡</i>			<i>1</i>
Senile decay					<i>1‡</i>		<i>1</i>
Drowned		<i>1†</i>	<i>1†</i>	<i>1†</i>	<i>1†</i>		<i>4</i>
TOTAL	<i>5</i>	<i>8</i>	<i>7</i>	<i>11</i>	<i>13</i>	<i>5</i>	<i>49</i>

\* Not including deaths (if any) among the Catholic religious bodies and the Japanese, exclusive also of premature and still births

† Non resident

‡ Asiatic or Eurasian

|| Infant

f Female

I have printed in italics those Causes of Death which more or less incorrectly are commonly referred to the action of the climate

Analysing this table, we find that of the total of 49 deaths recorded 5 were due to accident (drowning, 4, asphyxia, 1) There remain 44 deaths attributable to disease (33 males and 11 females) There were 11 deaths among children, distributed as follows —4 of European birth (3 males and 1 female), children of residents, 1 of European birth (female), the child of a visitor, and 6 non-Europeans (3 males and 3 females) The age of the two oldest children—1 Malay (remittent fever) and 1 European (cholera)—was 2 years, that of the youngest (European) was 7 days, the cause of death being convulsions The foreign adult mortality from disease was therefore 33 (27 males and 6 females), or, excluding 5 adults of Asiatic birth, the European adult mortality was 28 (24 males and 4 females) Of these, 13 (all males) were non-residents The mortality among resident European adults was therefore 15 (11 males and 4 females)

## I —CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS

Scarlet fever	1 (female)	Alcoholism	3
Cholera	1	"Cardiac hypertrophy"	1
Phthisis	1	Aortic aneurysm	1
Septicæmia	1	Pneumonia	1 (female)
Cerebritis	1	Hepatic abscess	2 (1 female)
Myelitis	1	Dysentery	1 (female)

11 males and 4 females, against 18 males and 11 females for the last previous corresponding period

## II —CAUSES of DEATH from DISEASE among the CHILDREN of RESIDENT EUROPEANS

Cholera	1 (female)	Hydrocephalus	1
Infantile cholera	1	Convulsions	1

3 males and 1 female, the numbers for the summer six months of 1887 having been 3 males and 2 females

## III —CAUSES of DEATH from DISEASE among NON-RESIDENT EUROPEAN ADULTS

Enteric fever	1	Alcoholism	1
Cholera	3	Pulmonary apoplexy	1
Bright's disease	1	Pneumonia	1
General tuberculosis	1	Peritonitis	2
Meningitis	1	Hepatic abscess	1

13 males, against 21 males during the corresponding period of 1887

## IV —CAUSE of DEATH from DISEASE in CHILD of NON-RESIDENT EUROPEAN

Meningitis	1 (female)
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1 female, as against 1 male and 1 female in the summer of 1887

## V —CAUSES of DEATH from DISEASE among NON-EUROPEAN ADULT FOREIGNERS

"Heart disease"	1 (female)	Purpura	1
Chronic bronchitis	1	Senile decay	1
Stricture of cardia	1 (female)		

3 males and 2 females, against 7 males and 3 females in the last corresponding period

## VI —CAUSES of DEATH from DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Remittent fever	2	Pertussis	1 (female)
Convulsions	1 (female)	Gastritis	1
Capillary bronchitis	1 (,, )		

3 males and 3 females, against 1 male and 4 females during the previous corresponding period

The summer was not nearly so disastrous as that of 1887, in which season there were 72 deaths attributable to disease. The diminished mortality is noticeable chiefly under the heads of small-pox, enteric and remittent fevers, cholera, phthisis and dysentery.

Four or five cases of scarlet fever occurred during the six months, with one death

In the fatal case the patient had nursed one of her children through scarlet fever. The disease ran its usual course until the 6th day, when the fauces were covered with a diphtheroid membrane, which on removal did not leave a bleeding surface. Violent delirium was a prominent symptom, and there was almost absolute refusal of nourishment. Death occurred on the 11th day, from apnoea and exhaustion.

A case was admitted to the General Hospital in July from a crowded alley in the French Concession. Notice was given to the municipal officer of health, and precautions were successfully taken to prevent the spread of contagion.

The course of the disease appeared to be rapidly and favourably influenced by the administration of bimodide of mercury\*. On admission the patient, a Eurasian boy of 16, had already been four days ill, the rash was dusky, throat symptoms very severe, swallowing almost impossible. Improvement set in immediately, and on the 8th day desquamation began. Dr DUKES in the article cited below is emphatic as to the effect of the mercurial treatment in preventing desquamation. The result was not realised in this case, for the skin peeled freely for several days, and the process was not complete until the 25th day. Albumen was first found in the urine on the 7th day.

There was but one fatal case of enteric fever, but from this fact, however gratifying in itself, it must not be concluded that the number of cases of the disease fell below the average. Apart from the large number of patients treated in private, there were 40 admissions to the General Hospital during the year 1888, with a mortality of 5, or 12.5 per cent.

The fatal case was that of a boy in the Royal Navy, aged 17, who had been placed on the list with dysenteric symptoms on the 26th July, and treated with opium and astringents. On admission his symptoms were those of dysentery, and ipecacuanha was ordered. On the 9th day the stools were almost healthy. On the 11th day they were distinctly typhoidal, and so continued until death on the 18th day. Involuntary micturition persisted from the 11th day. Death was due to pneumonia of destructive type. The history of the lung complication is as follows. When the patient was admitted there was complete dulness of the lower posterior portion of both lungs limited above by a line joining the middle points of the posterior borders of the scapulae. On the 7th day expectoration, which had up to that time been scanty, became more free, and consisted of yellow mucus. Next day there was a severe attack of dyspnoea. The patient lay by preference on the right side. On the 10th day, although both lungs had cleared nearly symmetrically for about an inch towards their bases, the respiration was 52. On the 12th day there was profound adynamia, and the left side of the chest was motionless. There was a violent access of dyspnoea on the evening of the 14th day, face pale, lips livid, patient showed rather by signs than by language that he was suffering from frequently recurring stabbing pains in the chest. On the morning of the 15th day respiration was 16, less superficial than before, but the pulse though only 102 was miserable. In the evening respiration had fallen to 14, and the pulse to 96, still of the same character. Next day respiration varied between 22 and 32, and was altogether abdominal. Coughed up some mucus with difficulty, not rusty, not stinking, but accompanied by a fluidic admixture of blood. Comatose during following two days, cyanosed. Died in afternoon of the 18th day.

*Autopsy, 16½ Hours after Death*—Rigor mortis well marked. Putrefaction commencing. Arms, hands and dependent portions of body livid, face livid, ecchymosed. Hypochondria green. Abdomen much distended, tympanitic. Much blood stained froth bubbling from nose and mouth.

Only abnormal appearances are noted. Pericardium, normal as to its surfaces, it contained about 12 fluidrachms of pink serum. Right pleura, free from adhesions, left, densely adherent in patches to chest.

\* Recommended by Drs ILLINGWORTH (*British Medical Journal*, 1886, 1, 859) and CLEMENT DUKES (*ibid*, 1887, 11, 67).



wall, forming loculi containing blood and bloody serum. The left lung was diminished in size, but throughout gorged with blood, it contained no air, its tissue broke down under moderate pressure into a blackish red pulp. No trace of commencing suppuration, no marbling. The lower lobe and lower half of the middle lobe of the right lung were in a similar condition, but less advanced. The upper lobe and upper half of the middle lobe contained much air, but were engorged to a slight extent.

Much bloody serum in peritoneal cavity. Intestines, deeply injected in parts on serous surface, bulged out of the abdomen. The peritoneal coat of the ileum for about 2 feet above the ileo-cæcal valve was injected. The mesentery was largely sown with enlarged and tense glands. At the junction of the ileum and cæcum the corresponding portion of the mesentery was replaced by a hard cord about 1 inch broad and  $\frac{1}{2}$  inch thick, consisting of a mass of enlarged and hard glands embedded in densely infiltrated areolar tissue. Some of these glands were as large as hazel nuts. On section they contained a pinkish-brown fluid and sloughs which shelled out of the capsule on pressure. The mucous surface of the lower 6 inches of the ileum was studded with ulcers which became close-set as the valve was approached. Several had destroyed the mucous and muscular coats and were beginning to invade the serous coat. The ileac surface of the valve was covered with ulcers surrounding sloughing glands. The small intestine contained a certain quantity of yellow, fluid feces. The colonic surface of the valve and the mucous membrane of the cæcum and ascending colon were deeply injected but not ulcerated.

There was a second death from enteric fever in the General Hospital during the period under review in the case of a Japanese sailor, admitted on the 10th day of the disease. He died on the 34th day, but as no autopsy was permitted, I will merely note that—

Extreme nervous prostration with obstinate constipation marked the case from the first. Enemata were necessary daily, and the stools thus induced were very copious and of extraordinary foetor. From the 21st day he passed urine unconsciously. From the 24th day large convulsive movements of the muscles were observed, succeeded by constant trembling. On the 30th day there was a tetanic condition of the muscles of the neck, back and limbs, which relaxed on the 33rd day.

There was a third fatal case which properly belongs to this period, but as death did not occur until the 31st October, it does not appear in the table under consideration. Its history, with report of the anatomical appearances, is deferred to my next Report.

The patient was a British man-of-war's man, admitted on the 4th day of the disease. Death occurred on the 24th day. In this case also tetanic symptoms were observed.

I have notes of 13 cases admitted under my care, between May and September, to the General Hospital, and which terminated in recovery.

Of these, 11 were Europeans, one Eurasian and one Chinese. One was aged 18, one 19, two 20, three 23, three 25, two 27 and one 33.

*CASE I—Symptoms previous to admission*—Headache, vertigo, disturbed sleep, night delirium, fainting fits, right iliac tenderness, constipation alternating with blood-stained diarrhoea.

*Condition on admission (6th day)*—Dull, hacking cough, intense thirst, liver enlarged upwards to nipple, abdomen tense, marked iliac tenderness, no gurgling, sweating heavily, no spots.

*Prominent Symptoms during course of Disease*—Epistaxis, constipation, yellow, fetid stools induced by enemata. Spots first found on 15th day. Temperature first fell to normal on 44th day, and did not rise above normal after the 48th day. Highest temperature  $103^{\circ}6$  on 8th and 40th days. No sequelæ.

*CASE II Female—Symptoms previous to admission*—Rigors, sleeplessness, night delirium, constipation, right iliac tenderness, incontinence of urine.

*Condition on admission (15th day)*—Deaf, stupid, dorsal decubitus, tongue brown, dry, red tip and edges, dusky skin, no spots

*Prominent Symptoms during course of Disease*—General convulsions with loss of consciousness daily up to 19th day. These were not of epileptic character. Involuntary characteristic stools, sleeplessness; delirium, dicrotic pulse. On the 19th day, the last day of the convulsions, there is a note taken at night: "The slightest touch makes her jump as if she received an electric shock." Temperature fell to normal on the 24th day, and did not rise above normal after the 25th. Highest temperature  $104^{\circ}4$  on the 18th day. No sequelæ

CASE III—*Symptoms previous to admission*—Dysentery, for which he had been treated with ipecacuanha and opium

*Condition on admission (5th day)*—Tongue moist, white, abdomen tympanitic, not sensitive anywhere, urgent thirst. Immediately on admission he passed 16 ounces of blood partly coagulated. Temperature  $102^{\circ}8$

*Prominent Symptoms during course of Disease*—Continual hæmorrhage for first two days. On the third day, after 30 grains of ipecacuanha which was retained, five very large extremely fetid stools, consisting of hard masses of feces. After this, characteristic diarrhœa. Smart hæmorrhages on 10th, 11th and 18th days. Sleeplessness, bed-sore, no delirium. Temperature fell to normal on the 19th day, and did not rise above normal after the 23rd day. In three weeks lost 34 lb in weight. No sequelæ

CASE IV Female—*Symptoms previous to admission*—Headache, pain in back and limbs, sleeplessness, stammering bladder, loss of appetite, nausea, foul tongue

*Condition on admission (3rd day)*—Diarrhœa, tongue white, moist, thickly coated, abdomen tympanitic, right iliac tenderness, no gurgling, "pain everywhere," intense frontal headache. Had been treated with quinine

*Prominent Symptoms during course of Disease*—Sleeplessness, delirium, vertical headache, pain in hepatic region, characteristic diarrhœa, spots. Temperature fell to normal on the 16th day, and remained normal. Highest temperature  $104^{\circ}4$  on the 9th day. No sequelæ

CASE V—*Symptoms previous to admission*—Sleeplessness, general malaise, severe cough

*Condition on admission (14th day)*—Restless, excitable, continual short dry cough, respiration superficial, harsh at left apex, expectoration scanty, bronchitic, right iliac tenderness, no gurgling, tongue transversely fissured, nausea, no spots

*Prominent Symptoms during course of Disease*—Characteristic diarrhœa, alternating with constipation, sleeplessness. Temperature first fell to normal on the 32nd day, and did not rise above it after the 35th day. Highest temperature  $103^{\circ}9$  on the day of admission. From the 32nd to the 38th day the morning temperature was subnormal ( $96^{\circ}6$  to  $97^{\circ}6$ ). No sequelæ

CASE VI—*Symptoms previous to admission*—Headache, coated tongue, malaise, fever rising to  $105^{\circ}$  on the 5th day in spite of vigorous treatment with antifebrin

*Condition on admission (9th day)*—Sleeplessness, severe occipital headache, intense thirst, diarrhœa consisting of bloody serum with yellow sediment, tongue brown with red tip and edges, no abdominal distension or tenderness, gurgling

*Prominent Symptoms during course of Disease*—Extremely offensive stools varying in consistency, frequently containing blood in small quantity. The highest temperature after admission was  $103^{\circ}2$  on the 11th day. Temperature fell to normal on the 15th day, and did not rise above it after the 22nd. Severe sciatic pain persisted for several days after convalescence was established

CASE VII—*Symptoms previous to admission*—Illness began with rigor Continued fever with cough, sweating, sleeplessness, deafness, wasting, urgent thirst, constipation

*Condition on admission (19th day)*—Skin yellow, pungently hot, abdomen tympanitic, very sensitive everywhere, tongue brown An enema brought away a large quantity of exceedingly fetid yellow faeces Chest resonant everywhere, respiration very feeble and superficial Light percussion of pectorals induces strong contraction and causes localised lumps to form

*Prominent Symptoms during course of Disease*—Characteristic diarrhoea, nausea Temperature fell steadily from moment of admission Convalescence was established on the 26th day No sequelæ

CASE VIII (sent from another port without any history) —*Symptoms previous to admission*—Patient states that three weeks before coming to Shanghai he was suddenly seized with diarrhoea, accompanied with fever, sleeplessness, horrible visions at night, loss of appetite, and rapid wasting In the middle of the third week his stools began to contain blood

*Condition on admission*—Several rose coloured spots on abdomen, gurgling in right iliac fossa, no marked tenderness, tongue brown, red tip and edges, temperature  $99^{\circ}$

*Prominent Symptoms during course of Disease*—Characteristic stools, containing blood in small quantity, night delirium Improvement began immediately after admission Convalescence was established on the 26th day Temperature never over  $100^{\circ}$  No sequelæ

CASE IX—*Symptoms previous to admission*—Malaise with severe epigastric pain and persistent fever, constipation, alternating with yellow diarrhoea, loss of appetite, wasting, sleeplessness

*Condition on admission (10th day)*—Brought to hospital in condition of collapse, referred by him, after reaction, to the violence of an attack of abdominal pain, no hernia, temperature  $102^{\circ}6$ , abdomen tympanitic, extremely sensitive, no spots

*Prominent Symptoms during course of Disease*—Characteristic diarrhoea speedily set in, alternating with stools perfectly black, often solid but generally liquid, dicrotic pulse, sleeplessness, persistent fever Temperature varied widely, hardly exceeding  $100^{\circ}$  for several days at a time, then swinging between  $102^{\circ}$  and  $105^{\circ}$  for a week or more Quiet delirium during periods of high temperature, occasional epistaxis, baked tongue, sciatic pain The symptoms did not permanently abate until three months after admission The patient became partly imbecile during the last fortnight of this period, and this condition persisted for a month after convalescence was fully established For three weeks severe sciatic pain caused lameness, and a periosteal node formed on the chondral extremity of the fourth rib on the left side

CASE X—*Symptoms previous to admission*—Rigor, followed by persistent fever, aggravated in evening, urgent thirst, sleeplessness, yellow diarrhoea, vertigo, frontal headache

*Condition on admission (13th day)*—Profuse sweating, temperature  $104^{\circ}8$ , abdomen covered with sudamina, no spots, tongue dry and brown, pupils dilated, sluggish, gurgling, but no marked tenderness, splenic dulness to 1 inch below left costal margin

*Prominent Symptoms during course of Disease*—Sleeplessness, headache, described as agonising, characteristic diarrhoea, tympanites, intercurrent pneumonia of both bases, intercostal neuralgia with herpes zoster on left side beneath breast Temperature fell to normal on the 63rd day, and did not again rise Highest temperature recorded  $104^{\circ}8$  on admission No sequelæ

CASE XI—*Symptoms previous to admission*—Rigors, sweating, constipation, continued fever, tympanites, gurgling in right iliac fossa

*Condition on admission (7th day)*—Several rosy spots on lower thorax and abdomen, temperature  $104^{\circ}$ , respiration 48, lips blue, short, dry, frequent cough, delirium, subsultus, restlessness, marked sensitiveness in both iliac fossæ, hepatic region excessively sensitive to percussion, no increase of hepatic

dulness, spleen a finger's breadth below costal border, right lung dull at base, increased vocal resonance at both bases, no crepitation, heart sounds feeble, first sound muffled at base and apex, no murmur, urgent thirst, severe paroxysmal pain in calves

*Prominent Symptoms during course of Disease*—Sleeplessness, delirium, deafness, prostration, nausea, characteristic diarrhoea, baked tongue, dicrotic pulse, almost foetal in character, urine and stools passed unconsciously (13th day), tendency to bed-sores, paroxysmal cooling of surface. Highest temperature,  $104^{\circ}$  on day of admission. Temperature fell to normal on the 18th day without any improvement in other symptoms. For three weeks after convalescence was imbecile, illusions by day and night, inflammation of substance of right supinator longus, threatening suppuration, neuralgia of inner surface of left leg and knee, cutaneous anæsthesia of both feet

CASE XII—*Symptoms previous to admission*—Diarrhoea, which became bloody, and then pure blood, severe abdominal pain

*Condition on admission (7th day)*—Tympanites, abdomen everywhere hypersensitive, tongue white, heavily coated, moist, stools yellow fluid with large admixture of blood, intense thirst, temperature  $102^{\circ} 8$

*Prominent Symptoms during course of Disease*—Profuse sweating, sleeplessness, delirium, involuntary evacuations (12th day), bilious vomiting, constant intestinal hæmorrhage, muscular tremor (10th day), hæmaturia. From 14th to 21st day stools characteristic, without blood. Then hæmorrhage recommenced. On 25th, 27th, 28th, 30th, 32nd, 37th, 55th and 56th days, severe hæmorrhages, the temperatures during this period being generally normal, occasionally subnormal, and on only one occasion (34th day) reaching  $101^{\circ} 4$ . The highest temperature was  $103^{\circ}$  on admission. No sequelæ

CASE XIII—*Symptoms previous to admission*—Rigors, bilious vomiting, constipation, sleeplessness, dyspnoea on exertion, cough with frothy yellow sputum, morning temperature on 4th day  $104^{\circ}$

*Condition on admission (7th day)*—Abdomen tympanitic, hypersensitive everywhere, two rose spots close to umbilicus, respiration shallow, hurried (30), tubular over back of both lungs, tongue brown, loaded, rather dry

*Prominent Symptoms during course of Disease*—Bilious vomiting, characteristic diarrhoea, delirium, dicrotic pulse. Highest temperature  $103^{\circ} 8$  on afternoon of admission. Temperature fell to normal on the 21st day and remained at that point. Numbness with lowered cutaneous sensibility of front of left thigh during convalescence

The above abstracts, if not of much use for any other purpose, show at least how multifarious enteric fever is, how frequently one or other of the classical symptoms is absent and how useless for purposes of prognosis any single symptom must be considered. As the season advanced the tendency to severe hæmorrhages increased, so that, as will be established in my next Report, enteric fever as observed in 1888 in the General Hospital might fairly be described as being of a specially hæmorrhagic type. It is hardly necessary to say that, whatever the explanation of this may be, errors of diet had no share in producing the phenomenon

I possess sphygmograms of the radial pulse from many cases of enteric fever observed this year. They are almost exact reproductions of those given by MAREY (*Physiologie médicale de la Circulation du Sang*, pp 389, 391), and I therefore do not print them. A certain interest attaches itself to tracings from such a disease as enteric fever, wherein it may be assumed that the condition of the arterial wall at the place where the tracing is taken fairly represents the general condition of the vascular system

Neglecting cases in which the attack was altogether fugitive, about a score of patients were treated in the General Hospital during the summer for malarious fevers. With one exception, in which the form was tertian, all the intermittents were quotidian. With regard to the remittent type, I confess to having more than once hesitated in making a diagnosis between remittent and enteric. Neither the history, nor the course of the temperature, nor the condition of the tongue, nor the nervous symptoms, including sleeplessness, delirium and stupor, if the case has been neglected, nor the frequent constipation, nor the splenic enlargement, will serve as a guide. As a general rule, however, I have found the maximum temperatures higher in cases which by their yielding to quinine proved themselves to be malarious than in enteric cases, the liver is more frequently enlarged and painful, bilious vomiting is more frequent, the stools frequently contain an excess of bile, and tympanites is uncommon.

The following reports deal with the cases of cholera seen by me this season —

*CASE I—Recovery*—1st August 1888 J C, male, aged 23, fireman on board an English steamer. Has not slept on shore since arrival of steamer. Was on leave yesterday, but did not drink anything (?). Was quite well up to 11 A.M. to day, when he was suddenly seized with diarrhoea and vomiting. About 7 P.M. severe cramps in legs set in. Admitted to General Hospital at 8.30 P.M., seen at 8.45 P.M. His trousers were found soaked with colourless fluid. He said he was conscious of having passed urine while on his way to hospital (?).

His clothes were saturated with perspiration. Respiration sighing. Pulse over 100, fairly good. Voice good. Eyes deeply sunken, face livid, tongue cold, extremities and tip of nose icy cold. Cramping pain in calves very severe. Cramps of fingers. Urgent thirst. Says he wants only to be let alone and sleep.

Ordered friction, heat to extremities, ice to suck, iced water ad libitum. 15 grains chloral hydrate every second hour.

2nd August—During night vomited incessantly, but happened to retain a little milk which he had asked for. Had no stool until midnight, then one, very copious and characteristically "rice water." Frequent colourless stools passed suddenly in bed subsequently. Was drowsy through night. Cramps diminishing in violence, but still persisting in fingers. Continues to pour with perspiration. Skin of trunk and extremities cold and livid, but face of better colour. Tongue still cold. Pulse 105, quite perceptible. Respirations 24, superficial. Stools unchanged. No anxiety, and restlessness is not marked.

Chloral continued. To every half-tumbler of iced water administered, 30 minims of aromatic sulphuric acid is added.

In the evening, vomiting less urgent. Stools less frequent, but of same character. Great restlessness. Urgent thirst. Cramps have ceased. Tongue and extremities less cold, tip of nose icy. Temperature in rectum (badly taken) 99° 8. Respiration 22, less superficial.

3rd August—Slept a good deal during the night. Stools very slightly tinged with yellow. Chloral every 4 hours.

In evening, vomiting persists. Arms cold, legs warm. Three enormous stools, liquid, oily, nearly black.

4th August—Passed a small quantity of urine (4th day) which boiled solid. Olive-green very copious diarrhoea. Tongue dry. Apathetic. Vomiting, but retains a good deal of milk.

5th August —Diarrhoea of same character continues Body warm, tongue moist and warm Very restless Vomiting green fluid Some urine passed, but only with stools

In evening, respiration 16, nearly normal in character

6th August —Diarrhoea, now typhoidal in appearance

8th August —Temperature under tongue, taken very carefully morning and evening, 96° 5

Six stools during the day, containing faecal lumps

9th August —Stools frequent, copious, faecal An enormous discharge of clear urine, amounting to 7½ pmts, exclusive of what was passed at stool It contained a trace of albumen, representing, however, a large total quantity

11th August —Diuresis continues Convalescent

The Chinese who waited on this patient was well until the 6th August He had gone out in the forenoon, and may have eaten or drunk something during his absence from the hospital, but there is evidence against this At 10 30 P M, while lifting the patient from the stool, he experienced, he said, a sudden feeling of nausea and faintness He was helped downstairs where he vomited his supper Cramps in the legs and arms immediately set in, and continued with great violence all night There was neither vomiting nor purging A native practitioner drove needles into him in various places Death occurred 8½ hours after seizure, violent cramps persisting to the last The man's wife who had been with him through the entire time of his absence from the hospital in the morning did not fall ill A relative who carried the corpse by boat in a shell to a native village 6 hours distant had an abortive attack—purging, vomiting and cramps—which ceased without treatment after a couple of hours

CASE II —*Death* —12th August 1888 H R, male, aged 38, mate of a ship Landed on the 8th August Was round the slums that night, and has been drinking a great deal, chiefly beer Slept at Sailors' Home each night since

After his death an enormous number of empty beer and gun bottles was found in his room, and his acquaintances report that for some months he has been continually drinking

Painless diarrhoea began yesterday morning Stools yellow (he says) Flux increased during the night Passed urine last at 10 P M yesterday Cramps in legs began at 5 A M to day Urgent thirst Immediately vomits whatever he swallows

Admitted at 8 A M Tongue moist and cold, breath cold, nose icy, extremities cold and purple Eyes sunken Skin of face livid, lips purple Bathed in perspiration Voice hoarse Pulse 100, hardly perceptible Temperature under tongue, taken with great care, 95° Immediately passed a very copious stool consisting of perfectly clear fluid with a large quantity of white flocculent deposit

Ordered hot bottles, sinapisms and friction, ice to suck, 15 grains chloral every second hour, sulphuric lemonade (60 minims of aromatic sulphuric acid to each ordinary tumbler of lemonade made with fresh lemons)

10 30 A M —One stool of same character Cramps neither violent nor constant The skin was reddened by the sinapisms Pulse (?) Very blue all over, especially face Retains the lemonade He became almost totally deaf about 11 A M

4 P M —Three stools (two involuntary) of same character Vomits whatever he swallows along with mucus Paroxysmal attacks of cramps in muscles of abdomen and back as well as in extremities Begs for a strap to fasten tightly round abdomen Is extremely restless, won't allow himself to be covered, and is in great apprehension of death, asking anxiously whether there is any chance of saving him Has short intervals of repose after each dose of chloral Pulse has disappeared Pupils widely dilated His whole body is cold and bathed in perspiration Skin of hands and feet wrinkled Deeply livid Respiration 54, superficial Thirst urgent Doesn't care for ice, but drinks sulphuric lemonade very freely, retaining a good deal of it

He displays great strength—flung a Chinaman across the room (about 6 feet) for not understanding him

10 P M—Less livid One very large stool, of the same character as before No vomiting Heart sounds inaudible There is commencing warmth of the calves

13th August, 7 A M—Bladder region clear on percussion Somnolent through last night Five stools—the first three as before, the last two, dark blood in considerable quantity without any tendency to coagulate Deafness persists No cramps all night Tongue, chin and nose icy, forehead and legs slightly warm, hands and feet cold, wet, livid, wrinkled Respiration 36, oppression Voice less hoarse Pupils still dilated No pulse Chloral stopped

5 P M—Pulseless, but one sound of heart can be heard beating 120 Surface less livid Superficial temperature as before Very restless Hiccough Hardly any vomiting Two stools, blood as before

9 30 P M—Unconscious, rolling continually from side to side Body warm, extremities less livid, hands and feet less wrinkled Respiration 52, much oppression \* Heart sound can be heard as before at apex It is exactly synchronous with inspiration Epigastrium and abdomen distended No stool since last note Vomited once, clear fluid with small, black, flocculent masses

14th August, 7 30 A M—Deeply unconscious, lying with eyes half open, incessantly rolling from side to side On attendant trying to give him some drink, he caught the spout of the vessel in his teeth and retained it with such force that it was only with great difficulty disengaged General warmth returning (commencing decomposition?)

Died at noon The body became perfectly rigid immediately after death No muscular movements were observed

*Autopsy, 17 Hours after Death*—Rigor mortis passing off No appearance of putrefaction Some, but not much, lividity of back and dependent parts Abdomen not distended Skin wrinkled and macerated There had been no hæmorrhage nor frothing from or at any of the natural openings

Thick layer of fat in abdominal wall The diaphragm was strongly arched into the thorax Lungs somewhat retracted

The visceral layer of the pericardium was injected, arborescence of vessels The sac contained about one fluidounce of nearly colourless serum The heart was large, the endocardium and valves normal The right side was full of fluid blood, but not distended, the pulmonary artery was also full The right auricle contained a firm nearly white clot lying over the tricuspid valve and extending into the superior vena cava The left side of the heart was empty The lungs were shrunken, but crepitant throughout No pleural adhesions, no ecchymoses on pleuræ

The intestines were slightly distended with gas Liver pulled up by diaphragm, its lower border bounded by the lower edge of the eighth rib No peritonitis The great omentum was loaded with fat

Liver perfectly natural on section in various directions Gall bladder distended, and neighbouring viscera deeply stained Spleen small, but normal on section The stomach was normal as to both surfaces, it contained a small quantity of bile-stained mucus The small intestine was throughout healthy, empty, except for gas The wall may have been slightly thinner than normal, but if so the condition was not well marked The mucous surface of the colon was covered with sanious mucus, mingled with fluid faecal matter On washing, it appeared healthy The kidneys were large, easily decorticated, congested as regards medullary cones, but cortical substance apparently normal The bladder was contracted, but easily unfolded It contained about one fluidounce of thick lactescent fluid, boiling solid

\* When respiratory distress is present in cholera it seldom takes the form of dyspnoea There is no deep, laboured, slow breathing as in a paroxysm of asthma The oppression manifests itself by the superficial and irregular breathing of the respiratory type of angina pectoris

The body contained comparatively little blood, but what was effused during the examination was perfectly liquid

Nothing more unsatisfactory than this postmortem as regards positive results can be imagined

CASE III — *Death* — 20th August 1888 S B, male, aged 23, able seaman on board a British man-of-war Was perfectly well up to noon yesterday, when he was suddenly seized with giddiness, numbness of lower extremities and spasmodic contraction of muscles of arms, forearms and fingers He had taken three or four pills out of a box labelled "NORTON'S Camomile Pills" an hour before the onset of symptoms The following is the ship's surgeon's report —

At 9 P M patient was slightly collapsed Legs slightly stiff, numb, cold Pulse feeble, no elevation of temperature Administered an emetic, which brought up partially digested food and a good deal of fluid Hot bottles to stomach and extremities, ether draught 11 P M slight improvement, very thirsty Brandy, 2 ounces Passed one loose, fecal stool This morning at 9 o'clock numbness not so marked Pain in right axilla Slight purple mottling of skin of thorax Pulse feeble, though stronger than last night Vomits after medicine Keeps down iced milk and soda water

Admitted to hospital at 1 30 P M Body cold, livid, moist Eyes sunken Forehead, tip of nose, chin, lips, tongue and breath cold Voice hoarse, but by no means extinct Has not passed urine since yesterday morning (about 32 hours) There is hardly any dyspnoea No pulse at either wrist, and sounds of heart cannot be distinguished at the apex Had one typically rice-water stool shortly after admission Not restless

Ordered dry mustard frictions, hot bottles, hot brandy and water

5 30 P M — Vomited three times, the fluid swallowed, with minute blackish flocculi Stools (4) rice-water with small brown clots Voice retained No cramps Hands wrinkled Feet slightly warm Pulseless Great restlessness, eyes continually rolling to the left and upwards

15 grains chloral hydrate every 2 hours Sulphuric lemonade

10 P M — A ripple of pulse can be felt in the temporal arteries Some slight warmth of forehead and legs Very drowsy Restless No vomiting 1 stool

21st August, 6 30 A M — Very restless throughout night Sweating, but not pouring Swallowed about 50 ounces of sulphuric lemonade within last eight hours, representing about 5 fluidrachms of anomatic sulphuric acid This must have been absorbed, for patient's breath smells strongly of the acid, and there is no epigastric distension or dulness No urine, no vomiting or discharge from bowels Breath is slightly warm, legs and feet not actually icy, body distinctly warm, nose, tongue, chin extremely cold, hands icy and more shivelled than last night Face less livid, but the tint changes from time to time, becoming more or less leaden Eyes about two thirds open, deeply sunk in sockets Voice perhaps slightly less hoarse At apex one sound of the heart, apparently the second, can be faintly distinguished There is no peripheral pulse perceptible Respiration 26, laboured Chloral to be stopped except in case of restlessness

8 30 A M — Respiration becoming more frequent

Noon — Half unconscious Swallowing with difficulty No discharges Coughed up a little greenish mucus Heart sound lost Forehead, ears, legs, feet and breath slightly warm, body distinctly warm, nose, chin, upper extremities icy

5 P M — Temperature of body still rising Forehead hot, hands intensely cold, still more shivelled, chin icy Respiration 40, purely abdominal Cries out hoarsely with a grimace every now and then, and face becomes momentarily livid Is quiet, lies with eyes half open, seemingly unconscious He can,



however, be roused to reply to a question, but what he says by way of answer has no relation to the question. Told to put out his tongue, he attempts to do so but fails. No evacuations.

9 45 P M—Respiration varying between 48 and 52. Perfectly unconscious. Forehead still hot and body very hot, extremities, nose and chin icy. No evacuations of any kind up to 11 10 P M, when death occurred. There were no muscular movements after death.

*Autopsy, 9½ Hours after Death*—Rigor mortis passing off. No putrefaction. Body not livid except on back. Shrivelling of hands passing off. Eyes open, pupils dilated. No special dryness of tissues. Muscles red, of natural appearance.

Diaphragm strongly curved into chest. Left lung retracted. Right lung held in contact with chest wall by old dense pleuritic adhesions. The pericardium contained a few drachms of pinkish-yellow serum. There were no ecchymoses on the parietal layer. On the visceral layer along the right border of the heart and carried on for a short distance towards the apex there were thickly agglomerated minute ecchymotic patches. The remainder of the visceral layer was covered with arborescent vessels. The right side of the heart and the pulmonary artery were full of fluid and lightly coagulated blood. There was no distension. The right ventricle contained in addition to recent coagula a dense fibrinous clot, perfectly white, about the size of a Brazil-nut, entangled in the columnæ papillares and chordæ tendinæ. This was limited to the ventricle, not extending into either the auricle or pulmonary artery. The great vessels were normal. The left side of the heart was empty. The blood throughout the body was fluid, not tarry.

There were no ecchymoses on either surface of the left pleura. The left lung was healthy but retracted, and posteriorly hypostatically congested. The right lung was throughout in an inflamed condition, congested at apex, red hepatisation passing into grey (exudation of purulent fluid on section) lower down, almost devoid of air.

The peritoneum was free from any trace of inflammation, and contained no fluid. The liver weighed 58 ounces, was normal on section, not dripping with blood. The spleen was small and soft, weighing 3 ounces. The stomach contained about 3 fluid ounces of turbid yellow fluid. The pyloric fundus was normal. Over the cardiac two thirds the mucous membrane was pulpy, scraping off readily with the back of the scalpel. It was the seat of numerous small and large extravasations, especially on the posterior surface. The œsophagus was normal. The serous surface of the small intestines was injected here and there, markedly so at the lower end of the ileum. The tube was distended with gas, but contained no fluid. The mucous surface was smeared with a thin yellow paste. The mucous membrane was pulpy, detaching itself spontaneously from the muscular layer. At the lower end of the ileum there was a considerable quantity of extravasated blood intimately mixed with the yellow paste. Here the entire surface for about 13 inches was dotted with ecchymoses, and there were large patches, corresponding with Peyer's patches, in which the mucous membrane was reduced to a blood-soaked pulp. Above this region the internal surface of the intestine was denuded of epithelium and thinned so as to be translucent. The mesentery contained several discrete, hard, enlarged glands, and groups of smaller glands matted together. The serous and mucous surfaces of the colon were normal. The large bowel contained the same pasty yellow substance as was found in the small intestine, but there was no admixture of blood.

The kidneys were easily decorticated. Left, normal, cones slightly congested. The right, dripping with blood on section. Together they weighed 8½ ounces.

The bladder was empty, and very tightly contracted.

CASE IV—*Death*—22nd August 1888. N. B., female, aged 2, child of European parents. Patient had always been delicate, prone to diarrhoea. Up to last night she was as well as usual, and yesterday evening was at a children's party. She slept well until 2 A M, when she woke, vomiting and purging. The motions were at first yellowish, but speedily became typical rice-water.

5 A M—Deep collapse Pupils contracted Pulseless Neither cramps, vomiting nor purging  
Body and extremities wet, livid, icy

Friction, external heat, hot brandy and water ordered

She swallowed when fluid was poured over the tongue She soon became restless, and then suddenly was seized with a general convulsion which lasted a couple of minutes This left her deeply unconscious, all reflexes abolished, eyes sunken, features pinched Respiration became slow and (4 to 6) irregular 2 grains bisulphate of quinine injected hypodermically This seemed to cause inspiration to become more profound for a few minutes Consciousness was never regained, and death occurred at 7 A M

There was no autopsy

CASE V—*Death*—22nd August 1888 A T, male, aged 38, Chinese steward on French mail About 10 days ago had a violent attack of diarrhoea, from which he recovered under native treatment Yesterday he was again seized with diarrhoea, going to the stool "some tens of times" Passed urine each time, and is positive that he passed some this morning Admitted to hospital at 8 A M

On admission the surface of the body and the tongue were cool, not cold Voice good Pulse perceptible at wrist, beating about 100 Had had one large liquid bilious stool between admission and visit half an hour later

$\frac{1}{4}$  grain morphia was given subcutaneously Tea with aromatic sulphuric acid External heat

5 P M—No vomiting Stools (10) large, liquid, bilious Absolutely refuses any foreign internal treatment Asks for some native decoction, which he is allowed to have Surface now very cold, breath cold Hands wrinkled Lips livid Oppression, respiration 14 Eyes sunken, lids retracted Severe pain referred to cardiac region Occasional but very slight cramps The radial pulse is barely perceptible, but not to be counted Bathed in perspiration

Ordered sinapisms, and friction with camphorated spirit

8 P M—Extreme restlessness He drinks tea and occasionally swallows a few spoonfuls of rice water No evacuations Less oppression, respiration 20 Forehead hot, nose and chin cold, hands icy and shivelled, feet and legs slightly warm, skin not wrinkled The native medicine having been prepared, he began taking it at 9 P M Five stools during the night, brown and oily No vomiting, and no urine passed

23rd August, 6 A M—Eyes less sunken Hands still extremely cold, and skin shivelled, warmth returning to all other parts of the body Radial pulse perceptible as a mere thread (96) Much less oppression Perspiration less Quiet

5 P M—Quiet Pouring with perspiration One stool as before No vomiting, and no urine passed Refuses all medicine Forehead, nose, chin and feet equally cool, not cold, lips cold, breath warm, face livid, body cold, hands icy and shivelled Respiration 13, very superficial No oppression Eyes firmly rolled upwards, pupils contracted, insensitive Abdomen tympanitic No radial pulse, one sound, with a rub, can be faintly heard at the heart's apex

10 30 P M—Unconscious, all reflexes except conjunctival abolished Right cornea muddy, pupils slightly contracted Forehead hot, body cold, hands and feet icy and shivelled No evacuations Died a few minutes later

There was no autopsy

CASE VI—*Recovery*—22nd August 1888 T B, male, aged 23, officer's servant in English Navy Bilious diarrhoea since yesterday, with severe colic Has not been exposed to the sun and has not eaten fruit or vegetables (?)

Admitted at 7 30 P M to observation ward His body is quite warm, but his tongue is cold Pulse weak, 120 Much oppression, respiration shallow, 48 No cough A hurried examination of the chest reveals nothing Urgent thirst

Was ordered  $\frac{1}{4}$  grain morphia hypodermically

Cramps came on during night Sleepless, but anxious to sleep Had eight stools before midnight, when morphia was repeated, and six stools between midnight and 6 A M on the 23d, all copious, typically rice-water Vomited five or six times, clear fluid, mostly water which he had drunk, with brown flocculent masses floating in it

23d August, 7 A M—In spite of these copious discharges there is not the least excavation of the eyes Voice is hoarse, but fairly good Pulse 90, weak Respiration 36, superficial The surface is everywhere moderately warm, but the tongue remains icy, breath warm Skin of hands not wrinkled No excessive sweating Ordered 15 grains chloral, after which he slept for  $1\frac{1}{2}$  hour

Noon—For first time since admission (29 hours) passed urine (8 ounces)

The urine was slightly opaque, deep yellow S G 1.023, intensely acid No change or deposit on boiling Dense deposit with cold nitric acid, becoming inky black with excess After prolonged boiling changed to a reddish fluid containing a large quantity of suspended dark-brown flocculi

He was now very restless, and got a second dose of chloral, which quieted him, but did not induce sleep

2 P M—Rice-water evacuations continue, and vomiting of colourless fluid with blackish-brown flocculi Restless Cramping pains in arms and legs

5 P M—Tongue still icy cold, moist, brown

10 P M—Tongue and hands cold, body and lower extremities warm Very restless Complaining of severe headache Pulse thready, 114 Oppression Urgent thirst To have sulphuric lemonade which he has hitherto refused

24th August—Four very copious stools during the night, faintly brown, but otherwise typical Vomited once at daylight some grass green fluid with brownish-black flocculi No cramps Warmth returning to tongue and hands Pulse 75, fairly good Respiration 24, no oppression

5 P M—Faintly brown serous evacuations continue Eyes slightly sunken Complains of severe pain in muscles of chest

9 30 P M—No urine has been passed since noon yesterday

25th August, 6 A M—Passed about 8 ounces of urine 42 hours after previous evacuation Stools (2) liquid, very copious, brown, with faecal smell Respiration 24, no oppression Pulse 96, fairly good

The urine was turbid from copious flocculent deposit S G 1.017, neutral Filtered with difficulty Filtrate faintly cloudy on boiling, cleared by drop of nitric acid Continuing to add nitric acid drop by drop, the fluid, while remaining clear, became light green, but on addition of acid in excess turned to a deep reddish-yellow

The deposit consisted of strings of mucus with a vast number of crystals of uric acid, a few of triple phosphate and of urate of ammonia and some granular debris with a few pus (?) corpuscles and multitudes of flat epithelial scales

Several fits of vomiting of grass green fluid with strings of mucus during the day Stools deep brown, only liquid Passed 6 ounces of urine Tongue remains cooler than normal

26th August—Convalescent

This patient had a sharp attack of dysentery between the 31st August and the 7th September, from which he recovered slowly, being finally discharged to duty on the 25th September

CASE VII—*Death*—27th August 1888 J L, male, aged 25, Russian Finn, sailor on board an American ship Was on shore yesterday, ate some fruit, and got half drunk Remained well, and was on duty up to 4 P M to day, when he was seized with vomiting and purging, "profuse," according to the officer who brought him Symptoms of collapse speedily set in, with violent cramps in legs and arms, and he was sent to hospital

Admitted at 8 P M, seen at 8 25 P M Eyes sunken Face, lips, surface of body, hands and feet livid, the lividity deepening during each access of cramp Skin of hands not wrinkled Cramp in muscles of extremities, abdomen and back so violent as occasionally to carry him round the long axis of his body through a right angle Fingers so firmly flexed into palms that it is only with great difficulty that the hand is unfolded, and the fingers themselves become almost black from venous congestion Great restlessness No dyspnoea, though respiration is 42 and extremely superficial Urgent thirst Body, arms and thighs cool and moist, not cold They have been energetically rubbed since the moment of admission Feet cold, nose, chin and tongue icy Tongue moist Pulse 90, a mere thread Both sounds of the heart are faintly audible at the apex Voice not lost, but very hoarse

Treatment was limited to sinapisms, energetic friction, application of external heat, and draughts of sulphuric lemonade

10 45 P M—One large stool, liquid, clean, very copious, faintly brown with dark flocculent deposit Vomiting what he drinks, along with a little mucus Hands shivelled, nails black The sinapisms have distinctly reddened the skin Great restlessness and oppression Respiration 54 Cramps less frequent and less violent, distinct fibrillary movements of muscles, especially of gastrocnemii Pulse 120, irregular and thready One cardiac sound, apparently the second, is faintly heard at apex of heart Tongue, forehead and hands icy, nose, lips, chin and trunk cold, calves distinctly warm (local combustion?) Much sweating, especially of head

28th August, 1 A M—Died almost suddenly For an hour he suffered intensely from cramps, most violent in muscles of back, and from oppressed respiration In the intervals of the cramps he sat up in bed, gasping and flinging himself from side to side From 11 to 1, was constantly spitting, or rather trying to spit, bringing nothing away Breath became warm No evacuations Consciousness preserved In act of dying voided a large liquid colourless stool, and after death there was a considerable flow of serous fluid from the mouth

*Autopsy, 7 Hours after Death*—Body rigid No putrefaction Surface uniformly livid, very slightly increased on dependent parts Surface of thorax cold, of abdomen distinctly warm Eyes, deeply sunk in orbits, rolled upwards Eyelids retracted Thumbs and fingers strongly flexed into palms Skin of hands and feet wrinkled Colourless fluid in small quantity running from mouth only There was a very thin layer of subcutaneous fat on thorax and abdomen The muscles were pale and remarkably dry

Diaphragm strongly arched upwards Lungs retracted Thoracic organs distinctly warm The pericardium was crisp and dry like thin parchment, no ecchymosis on either surface, it contained no fluid Heart of natural size, flaccid Endocardium and valves healthy The right auricle and ventricle contained some (but not much) black, fluid blood There was no clot, fibrous or otherwise The pulmonary arteries were also free from clot, and contained a moderate quantity of blood The left side of the heart was empty The great vessels were healthy The blood throughout the body was fluid, showing no tendency to loose coagulation on standing

The left lung was but slightly retracted, crepitant everywhere, rather bloodless on section Its pleura was healthy, no adhesions or ecchymoses The right lung was crepitant but dark, and contained much blood The pleura over the upper lobe was adherent

The liver was dragged up by the diaphragm, and corresponded to the interval from the fifth rib to the seventh. The stomach bulged forward. The peritoneum was normal, its cavity dry. The great omentum was free from fat. The surface of the small intestines was here and there injected. The temperature of the abdominal cavity was high, but was not measured accurately.

The liver was full of blood, otherwise normal, it weighed 60 ounces. The gall bladder was distended with green, liquid bile, its internal surface was normal. The peritoneal surface of the duodenum was deeply bile stained. The spleen was withered in appearance, very friable, weighed 3 ounces. The serous surface of the stomach was normal. The viscum was distended with gas, it contained about 12 ounces of brownish fluid and an immense quantity of unchanged beef and potatoes.

On inquiry it was ascertained that this had been the patient's dinner at 2 P.M. on the previous day. It is extremely curious that he should have retained it in spite of the severe vomiting which ushered in his attack, and the almost continuous vomiting up to 11 at night while in hospital.

The posterior surface of the stomach was deeply injected, but the mucous membrane was nowhere softened. The mesentery was everywhere thickly studded with enlarged and hard glands. The small intestine contained a moderate quantity of white fluid like very thin rice gruel. The mucous membrane had no tendency to detach itself. The wall was not thinned. At the lower end of the ileum for about 6 inches above the valve the solitary and agminate glands were swollen, standing out prominently. There was no sign of ulceration. The ileo-cæcal valve was healthy. Mucous membrane of colon healthy. The colon contained fluid similar to that found in the small intestine.

The kidneys were easily decorticated, the right was of normal appearance, the left was, as regards both cortical and medullary substance, full of blood. The bladder was empty, contracted, but not stonily hard.

CASE VIII—*Death*—27th August 1888. A T, male, aged 38, Arab, fireman on board French mail. Patient was on shore during the evening of the 25th, and was known to have eaten some melon. He was well yesterday. This morning at 4 o'clock was seized with vomiting and purging, which continued with violence until 7.30, when he was seen by the medical officer, who sent him at once to hospital, the diagnosis, not uninfluenced by anticipation of quarantine in the near future, being "faiblesse extrême."

On admission at 8 A.M. the body was cold and wet, but not soaked in perspiration. Forehead, tip of nose and chin cold, tongue icy. Eyes not markedly sunken. Orthopnoea, extreme distress, respiration 42. No radial pulse, one sound audible at base of heart. Voice hoarse. Very restless. Severe cramps confined to calves.

Ordered friction, external heat, sulphuric lemonade, 15 grains of chloral—to be repeated in two hours if restlessness continued.

From the moment of admission there were no evacuations of any kind. The abdomen rapidly became tympanitic, and the patient suffered from extremely severe colicky pains, causing him, along with the cramps in the legs, to scream violently. Collapse became deeper and deeper, and death occurred at 3 P.M., apparently from apnoea, 11 hours after the onset of the attack.

There was no autopsy. An enormous quantity of colourless fluid was found to have poured from the mouth of the corpse when, 12 hours after death, it was removed. The quantity was so considerable that it had soaked the clothing and poured on to the dead-house floor, where it formed a pool covering a surface of 3 or 4 square feet.

I do not flatter myself that these tedious details of cases will prove of any great value to anybody. But any fact, no matter how apparently trivial, may by chance prove of importance when it bears on a disease regarding which, whatever we may know or fancy we know about its pathogeny, we have literally everything to learn in respect of treatment. For my own part

I am in doubt that it is always identically the same poison that produces the group of symptoms which we call cholera. It cannot be denied or concealed that the results of the treatment of cholera as it presents itself in Shanghai are deplorable. Some grim satisfaction may perhaps be derived from the circumstance that Case VII, reported above, in which the symptoms were of appalling severity, and ran with the utmost speed to a fatal termination, had no medicinal treatment whatsoever. It is at least certain that here no harm was done by the misdirected administration of drugs. Chloral in moderate doses was generally given in preference to morphia to diminish restlessness and relieve the agonising pain of cramps. It seemed to soothe, but I doubt that it is preferable to a single small injection of morphia, or that the idea that this latter may prove hurtful by diminishing evacuation has any foundation in fact. However humiliating the confession must be, the words are as true now as they were half a century ago, when SN THOMAS WATSON wrote them —

If the balance could be fairly struck and the exact truth ascertained, I question whether we should find that the aggregate mortality from cholera was in any way disturbed by our craft. Excepting always the cases in which preliminary diarrhoea was checked, just as many, though not perhaps the very same individuals, would probably have survived had no medication whatever been practised.

The malicious inference is obvious enough—that if some patients were cured by treatment others were killed.

Turning now to Dysentery, it will be noticed that but one death, that of a European female, in May, is attributed to this disease.

The case was a chronic one of many months standing in a woman whose history and surroundings were as bad as could possibly be imagined.

From the minimal mortality, however, minimal frequency or severity of the disease must not be inferred. Many cases were treated in private, and those which came under observation at the General Hospital were not by any means of a mild type, as the following abstracts will show.

CASE I—L. K., aged 59, Manila quartermaster. Admitted 18th September 1888. Vomiting large quantities of green fluid. Purging pure blood.

Ordered 30 grains of ipecacuanha, which arrested vomiting, but had no effect on the loss of blood. This continued with great violence until next morning, when patient was blanched. Ordered extract of hamamelis virginica in ½-ounce doses every second hour. Hæmorrhage was immediately controlled. By evening he had had three stools, small, horribly fetid, like coffee grounds. Next day there were five or six frankly dysenteric motions. 30 grains of ipecacuanha produced bilious passages, and convalescence seemed established when the patient on the 27th September ate the dinner of a patient on general diet who happened to have lost his appetite. Bleeding immediately recurred, but was again speedily checked by the administration of hamamelis.

In my next Report I shall narrate cases of severe hæmorrhage in the third week of enteric fever which yielded at once to hamamelis. This drug also acts admirably well in the pulmonary hæmorrhage of phthisis, that is, of course, where the hæmorrhage is parenchymatous and not due to aneurysmal rupture of denuded vessels in cavities. BRUNTON\* reports of it —

Internally, it is a very efficient hæmostatic in bleeding from the lungs and other internal organs. In some cases of hæmoptysis I have found it in the form of the non-official preparation of it called

\* *A Text Book of Pharmacology, Therapeutics and Materia Medica*, 2nd ed., p. 943

hazeline more efficient than digitalis and ergot, although in other cases digitalis and ergot have answered better. It checks the flow in menorrhagia when given during the period, and it lessens pain in dysmenorrhœa. It has been supposed by DUJARDIN-BEAUMETZ to owe its utility to an action on the muscular fibre of veins.

An extract of hamamelis is officinal in the revision of the *United States Pharmacopœia* of 1880.

CASE II—M F, male, aged 20, seaman on board an English man-of-war. Admitted on the 31d day of violent dysentery following on a fortnight of diarrhœa. 160 grains of ipecacuanha were administered before any effect on the stools was noticeable. On the 6th day fœces appeared in the stools, and convalescence speedily followed. Although this patient never kept his dose of ipecacuanha down for less than five hours, and generally retained it altogether, the stools never assumed the brownish-yellow colour that the drug commonly produces.

CASE III—W A, male, aged 41, Negro fireman. Admitted on the 8th day of severe dysentery with great frequency, tormina and tenesmus. Passages contain no fœces, they consist of mucus, blood and pus.

Ordered castor oil and laudanum.

Next day the stools were copious, containing in addition to mucus and blood much serous fluid. He was put on 30-grain doses of ipecacuanha daily, which he retained without difficulty, but which up to the 14th day of the disease had no effect on the stools. From this out he was treated with castor oil and laudanum morning and evening until the 21st day, when all dysenteric symptoms had disappeared, and a bilious diarrhœa alone remained.

CASE IV—O W, male, aged 29, German fireman. Admitted on 9th day of dysentery. 20 to 30 passages daily, mucus and blood and horribly fetid brown liquid. Much tormina and tenesmus. Had been treated with astringents.

Ordered castor oil and laudanum.

This induced several putrid passages containing a miscellaneous collection of hard faecal masses, lumbricoid worms and three pieces (each consisting of several segments) of bothriocephalus latus. Castor oil and opium were continued for three days until the acute symptoms of bowel irritation had disappeared, and then "several feet" (which I did not see) of tapeworm were expelled by a dose of male fern. A day or two later, after a few grains of santonine, three more lumbricoids were got rid of. There was no further bowel trouble.

The following case is reported merely to indicate the natural course of severe dysentery when left without treatment—

CASE V—*Death*—B, Chinese female, aged 37. Came under observation on the 26th May 1888. Refused all foreign treatment, and after one trial of some native decoction determined to have no treatment at all. Stools very frequent, extremely fetid, preceded by severe tormina but no tenesmus.

27th May—Incessant vomiting. Sleeplessness. Stools very frequent, now with tenesmus, contain pus as well as mucus and blood and a slight trace of fœces. Vomiting ceased.

28th May—Sleeplessness persists. Continual vomiting and straining at stool. Less tormina. Stools hæmorrhagic. Tongue moist and clean.

29th May—Stools pure blood. Sleeplessness yielding. Tongue dry. Pulse 140.

30th May—Some fluid fœces in stools which otherwise consist of blood only. Tongue moist. Vomiting. Pulse 140, flickering.

31st May—Very prostrate Tongue still moist, lips dry Stools very frequent and copious, passed unconsciously, brown fluid without any blood Violent palpitation Pulse 144

1st June—Hæmorrhage reappeared Restlessness, delirium, fly-catching Pulse 180 Trembling of extremities Nails purple Tympanites *Tongue moist and natural* Death

Two fatal cases of Peritonitis are reported

CASE I—M I, male, aged 20, seaman in French Navy Admitted on the 29th May 1888, supposed to be the 19th day of his illness Epistaxis occurred on the 16th and 17th May Was stupid, sleepless and sub-delirious from the first

Had been treated with aconite, digitalis, quinine, extract of cinchona, and carbolic acid by the mouth, and cold enemata of carbolic acid No report was made as to state of bowels

From 15th to 28th May the morning temperature varied between  $100^{\circ}5$  and  $104^{\circ}$   
 " " " evening " " "  $101^{\circ}5$  "  $104^{\circ}4$   
 " 19th to 23rd " " " was at least  $104^{\circ}$

On admission patient's face was flushed, dusky Pupils widely dilated, insensitive Lips dry, tremulous Tongue natural Very slightly deaf, no buzzing in ears Respiration 36, extremely superficial Coughing Moist râles at both bases Pulse 108, compressible Temperature  $102^{\circ}9$  Skin pungent, dry Abdomen tympanitic Slight roseolar eruption on thorax Little or no iliac tenderness Heart normal Liver slightly enlarged upwards Splenic dulness 2 inches below costal margin Says that for the last couple of nights he has slept fairly, dreaming, but not horribly

In the evening he had had one small lumpy stool, olive-green Was expectorating 10py mucosanguineous sputum Urgent thirst There was slight epistaxis during the night Temperature  $104^{\circ}$

30th May—Stools (two) brown, nearly hard, very fetid Abdomen covered with sudamina A few fresh roseolar spots on abdomen Complaints of intense pain of neuralgic character on both surfaces of both feet Touching any point on his arms produces a smart muscular contraction as if a shock from a coil were administered This is no greater when ZIEMSEN'S motor points are picked out After six or eight trials the reaction almost ceases, fibrillary movements in all the muscles on both surfaces of the forearms taking its place Respiration 20 Spitting up thick, blood-stained, viscid mucus Temperature  $102^{\circ}4$

In the evening, subsultus He was lying on his side without any oppression of breathing Temperature  $104^{\circ}$

31st May—Apparent improvement after a quiet night Respiration 24 Less expectoration, which is serous, hardly blood-stained Temperature  $102^{\circ}6$  Less subsultus, lips not trembling Pupils respond slightly to light Frequent slight epistaxes during the day After a small very constipated stool in the morning, an enema containing 1 ounce of castor oil was administered During the afternoon and evening he passed six very copious, pulpy, yellow, horribly fetid stools, and after these he complained of severe pain along the course of the transverse colon, which was relieved by 15 minims of laudanum

1st June—Slept fairly all night, complaining occasionally of abdominal pain, and of a desire to defecate which he could not satisfy At 9 30 A.M. he suddenly screamed out that he was dying When calmed he described the pain that had seized him as "tearing," and situated in the upper part of the abdomen The abdomen was tense, very sensitive He was bathed in sweat Extremities warm Universal muscular twitching Hippocratic face Pulse 132, thready Respiration 27 The tongue was almost normal

I contemplated opening the abdomen, but abandoned the idea, concluding that the case was one of enteric fever terminating by perforation



During the day the abdominal distension diminished. Sweating was profuse. The extremities remained warm. Breathing very rapid. A little purulent mucus expectorated with difficulty. Tongue now becoming dry.

In the late evening respiration was 50. Pulse barely countable at 200. Passing urine freely, no other evacuations. Asking for milk and champagne, and taking both readily. At 10 P.M. was lying asleep on his back with eyes completely closed. Extremities cool, not cold. No increased tympanites or sensitiveness to light percussion.

2nd June.—Shortly after midnight he began to vomit. At first he rejected all he had taken during the day (milk, etc.), mixed with an incredible quantity of bile—an ordinary toilet-basin full. At 4 A.M. began to vomit “coffee grounds” in considerable quantity. Up to 5 A.M. he insisted on rising incessantly to go to stool, evacuating nothing from the bowel, but passing urine freely. At 5 A.M. respiration 60. Pulseless. Extremities cold. Covered with sweat. Very deaf for last two hours. Fully conscious up to 6.30 A.M., when he died suddenly, suffocated by a flood of coffee-ground vomit which rushed from nose and mouth.

*Autopsy, 12 Hours after Death*—Putrefaction commenced, though rigor mortis was still marked. Whole body livid, posterior surface of trunk, arms and legs deep claret colour. Bloody fluid pouring in considerable quantity from nose and mouth. No fat on surface of chest or abdomen.

Very little time was allowed for the examination, so that attention was solely directed to the abdomen.

The diaphragm was arched upwards, forcing the lungs to the back of the chest. The abdominal viscera were everywhere matted together and covered with flakes of lymph and pus. The small intestine was distended with gas, and was intensely injected on its peritoneal surface. The colon was shrunken. The pelvis contained a large quantity of purulent fluid without faecal odour. The ileum was ligatured and cut across at its junction with the colon, and a canula was tied into the cardiac orifice of the stomach through which the stomach and small intestine were fully but not forcibly distended with water. There was no escape of fluid through any perforation. When the water was allowed to run off after about 10 minutes it was dark-brown in colour and contained some small faecal masses. The mucous surface of the entire digestive tract was deeply congested, blood extravasated in numberless large patches into and beneath the membrane. Nowhere were there any ulcerated or elevated areas. The mesentery was studded with swollen and for the most part suppurating glands. Immediately below the stomach, in an incomplete pouch formed between it, the liver and the lower border of the pancreas, was a large collection of flaky pus, probably originating in caseated glands, whence the fluid in the pelvis appeared to have drained.

The liver weighed 71 ounces. Nowhere did its tissue appear normal. It was uniformly mottled, on section, with nearly white sago-grain patches on a brownish-yellow ground. An exact representation of the macroscopic appearance of the gland when cut anywhere may be found in CRUVEILHIER'S *Anatomie pathologique du corps humain*, vol. I, fascic. XII, planche 1, fig. 2, under the head of “Foie granuleux (cyrinose)”

The spleen was double its natural size, yet nearly normal to touch and in appearance on section.

CASE II.—W. S. M., male, aged 28, seaman on board an English man-of-war. Admitted with the following history. At sea, at 5 P.M. on the 29th July, being apparently in perfect health, patient was suddenly seized with violent colic, for which he took 30 minims of chlorodyne, but without relief. Three hours later pain was still intense, of tearing and twisting character, round umbilicus, slightly relieved by heat and pressure. He had had two normal stools in the early part of the day. There was no history of strain. He was walking the deck quite well when the attack came on. He was ordered castor oil and laudanum and a small hypodermic injection of morphia.

30th July—Temperature in morning  $100^{\circ}6$  Features pinched Tongue furred Restless and sleepless night Vomiting a little thin fluid Abdomen lax, some tenderness in right iliac region Castor oil repeated, but immediately vomited Pain in very acute paroxysms, extending down right thigh Mouth very dry Morphia repeated

3 P M—Bathed in sweat Dorsal decubitus, with right thigh flexed on abdomen Abdomen hard and exceedingly sensitive, especially over caecum Occasional vomiting Retention of urine No haemina Morphia repeated Condition unchanged at night Temperature  $101^{\circ}$

31st July, 7 A M—Keeps legs wide apart, but extended Breathing altogether thoracic Abdomen much distended, especially in left iliac region Diffused tenderness Apathetic though quite conscious Vomiting Hiccough No tumour can be made out 4 ounces of deeply-coloured urine drawn by catheter

The abdomen became more tense as the day went on Breath offensive Little pain until 3 P M, when it became severe Urgent thirst Bladder empty No vomiting

6 P M—Muttering A little urine drawn off

Meanwhile his ship had been hurried to Shanghai, and patient was admitted to the General Hospital at 8 P M His skin and clothing were saturated with perspiration Surface cold Quite conscious, apathetic Breathing exclusively thoracic, punting Legs extended Abdomen tense Nothing to be felt in the rectum, nothing at the ordinary seats of haemina Pulse running, but wiry Severe abdominal pain, rather relieved by gentle pressure

The alternative lay between letting the man die, and giving him a chance for life by abdominal section The state of things was explained to him, and without appearing to take much interest in the matter he decided in favour of operation He took chloroform without difficulty, and I opened the abdomen in the linea alba by a 3-inch incision midway between the umbilicus and pubes Deeply injected and tensely distended intestine presented in the incision, and its exit was with difficulty kept within reasonable limits A considerable quantity of turbid fluid welled up by the side of the exploring hand This had no faecal odour The cavity was systematically explored, first the caecal region, then the inguinal and femoral rings, and the obturator and sciatic foramina No explanation being discovered, the intestine itself was carefully examined It was all deeply injected, port wine colour in parts, and mostly covered with flakes of recent lymph In front, a little below the lower angle of the wound, a collapsed portion of bowel was felt and drawn up Immediately above it, but not compressing it, was a band apparently merely of lymph which stretched across it from one border to the other As a matter of precaution this band was incised The portion of bowel below it immediately filled with gas, but this result was evidently due to the manipulation having straightened a kink due to soft adhesions There was no diminution in the distension of the intestines after the severance of the band, and further examination brought no obstruction to light

Whatever the cause of the peritonitis might have been, it was obvious that the muscular coat of the small intestine was completely paralysed After cleansing the surface of the intestine with soft sponges, a loop was fished up immediately above the remains of the band just described, and an artificial anus formed at the lower angle of the wound There was but a moderate escape of gas after incision of the bowel, sufficient, however, to facilitate the return of the intestine still prolapsed through the wound in the abdominal wall The edges of this latter were brought together by deep stitches including the peritoneum, and superficial stitches including skin and areolar tissue The patient was removed to a hot bed His pulse was then full at 120, soft and regular The surface of the body was dry and reasonably warm

1st August, 6 45 A M—Remained semi-unconscious all night, taking nothing Death occurred at 8 A M

The temperature in the axilla was  $107^{\circ}5$  half an hour after death, and remained at that for another half hour before beginning to fall

*Autopsy, 1 Hour after Death*—There was no mark of injury on the body, except the operation wound. No lividity of the surface. Rigor mortis had not set in. No putrefaction. Great and general distension of the abdomen, which was everywhere resonant. There was no discharge from any of the natural openings. On opening the thorax the lungs were seen to be retracted. Pericardium and heart sunk slightly backwards.

The pericardium was normal, containing a very minute quantity of serous fluid. Heart strongly contracted, all the cavities empty, muscle, valves and endocardium normal. The great vessels were full of dark fluid blood, which coagulated firmly and quickly on escaping. The lungs were collapsed and anæmic. Structurally normal.

The parietal peritoneum, including that covering the under surface of the diaphragm, was deeply and uniformly injected, here and there, but chiefly in the right hypochondrium, covered with lymph. The diaphragm was strongly arched into the thorax. When the intestines were removed all the fossæ in the abdomen—retro hepatic, splenic, retro cæcal,—as well as the true pelvis, were found full of purulent fluid containing no trace of fæces and exhaling no fæcal odour. There was no abscess in the pericæcal region. This when sponged out presented a perfectly normal appearance as regards the neighbouring areolar tissue and pelvic muscles. All the abdominal organs were very hot to the touch.

The liver extended  $2\frac{1}{2}$  inches below the costal border in the mammary line. Hepatic tissue healthy, somewhat fuller of blood than normal. The spleen was normal. The stomach was distended with gas, its peritoneal surface hardly, if at all, shared in the surrounding inflammation.

The small and large intestines were tightly distended with gas, and the peritoneal surface deeply injected, and in several places coated with lymph in large flakes. No volvulus, intussusception or band. No obstructing mass. The artificial anus had been made 6 inches from the ileo cæcal valve. The cæcum contained a small quantity of normal fæces. Mucous membrane healthy. Appendix free, hardly perceptibly swollen, but deeply injected on peritoneal surface. It was empty, its mucous membrane gangrenous at the distal end, the gangrene penetrating its coats by a pinhole 1 inch below its attachment. Between this point and the bowel the mucous membrane appeared to be normal. No cause for the gangrene could be discovered.

18 inches from the anus there was a collapsed portion of descending colon, 5 inches long. On section it exhibited concentric narrowing, passing suddenly into bowel of normal calibre above and below. The condition was not congenital, for the mucous membrane was thrown into closely-set longitudinal wavy folds. The submucous tissue was not infiltrated, nor was there any trace of ulceration or other past acute lesion.

Three deaths from Hepatic Abscess are reported, all having occurred in September. With regard to two of them, one male and one female, I have no information. The following are the particulars of the third case—

W H, male, aged 29, Customs Tidewater at Ningpo. Had always led a steady life, and had never been ill except for an attack of diphtheria in 1874. Has never had any form of malarial fever or dysentery. The report of his present illness was as follows. On the 24th August he had a fugitive attack of diarrhœa. On the 26th he was slightly feverish, but went out rowing. On the 28th he complained of headache, loss of appetite and constant bitter taste in his mouth. There was no shivering. Temperature  $100^{\circ} 2$ . Up to 3rd September pulse and temperature were normal. His only complaints were of nausea and bitter taste. On the 3rd a round worm was expelled, and pain in the hepatic region was first noted. No rise of temperature or other symptom of fever. The liver region was found to be painful on percussion, hepatic dulness extending to 2 inches below the ribs. Pain increased by lying on left side. Vomited a great quantity of green stuff. Constipated. Temperature in evening  $99^{\circ} 5$ .

Admitted to the General Hospital the 11th September, bringing the above history. Stated that he had had no stool for three days, and had been sleepless for previous eight days, except when under the influence of a sedative. He is extremely thirsty. There never has been any pain in either shoulder. Neither food nor medicine excites nausea, but he frequently brings up clear frothy fluid. Tongue normal. Face much flushed. Temperature  $103^{\circ}$ . He is exhausted by his voyage and the inevitable knocking about.

There is no obliteration or widening of the intercostal spaces in the upper part of the hepatic region, but there is very marked fulness in the right hypochondrium. 3 inches below the horizontal nipple line the semi-circumference of the trunk is alike on both sides. Over the swollen area it is  $15\frac{3}{4}$  inches on the right side, as against  $14\frac{1}{4}$  inches on the left. Taking the horizontal plane through the nipples for reference, the liver dulness in the nipple line begins  $1\frac{1}{2}$  inch below it and ends  $8\frac{1}{2}$  inches below it. In the mid-axillary line the dulness begins 2 inches below it and ends  $9\frac{3}{4}$  inches below it. The upper limit of dulness follows a slightly curved line convex upwards, and is not altered in position by the deepest inspiration possible. In the middle line anteriorly dulness begins at the xiphoid appendix, and extends downwards for 5 inches. At the level of the xiphoid appendix it extends  $2\frac{1}{2}$  inches to the left. There is very marked tenderness on palpation and percussion. No sense of fluctuation, on the contrary, there is great resistance from spasm of the abdominal muscles. There is a patch the size of a dollar of complete silence at the base of the right lung close to the spine. Round it the respiration is tubular. Elsewhere respiration is normal. There is no cough or dyspnoea. As regards the heart, there is a systolic apical bruit not conducted to the axilla, and a systolic basal bruit heard most distinctly at the right border of the sternum. There is no enlargement of the spleen, no icterus, no oedema. Patient says that he has wasted considerably within the last few weeks. The urine is in normal quantity, clear, reddish-yellow, acid, S G, 1.020. Faint purple line at contact with layer of cold nitric acid in test tube, no albumen, no sugar.

The need for immediate operation was explained, patient consented to its being performed on the 14th, as he thought it necessary to make some preliminary arrangements by correspondence with Ningpo. This postponement, moreover, did not appear inadvisable as it gave time for much needed repose.

12th September — Diarrhoea and vomiting during night. Delirious. Tongue dry. Temperature in morning  $101^{\circ}$ , in evening  $103^{\circ}$ .

13th September — Diarrhoea and vomiting continue. The stools liquid, yellow, containing neither blood nor pus, the vomit colourless fluid, frothy.

With a view to operation to-morrow, that he might be as short a time as possible under chloroform, explored for pus with aspirator. A spot was found 2 inches to the right of the middle line of the abdomen and 5 inches below the nipple horizontal, the slightest pressure upon which induced vomiting. The finest needle of the aspirator introduced here to a depth of  $2\frac{1}{2}$  inches drew off only blood. At a point 3 inches from the middle line and  $6\frac{1}{4}$  inches below the nipple horizontal, pus was found at a depth obliquely outwards of  $2\frac{1}{2}$  inches, but too thick to pass freely through the needle. The punctures were covered with a thick layer of iodoform, and protected by a large pad of salicylic wool and a binder. There was slight collapse. Pulse 120, very small and weak. Immediate desire to go to stool, which, however, he was able to resist. He remained without pain until 7 P.M., when he received a  $\frac{1}{4}$ -gram hypodermic injection of morphia.

14th September — Slept well until early morning, when he became restless, and after an hour suddenly collapsed. At 5 A.M. he was fully conscious, but was voiceless, icy cold, bathed in sweat, pulseless, and had passed urine unconsciously. Respiration panting, 66. All the usual means were adopted, heat, friction, hot brandy and water, ether injections, etc. At 10 A.M. there appeared to be some slight reaction, with, however, speedy relapse. Death occurred at 1.30 P.M. The temperature in the axilla immediately after death was  $102^{\circ}$ .

*Autopsy, 2½ Hours after Death* — Average temperature of air since death  $77^{\circ}$ . The surface of the body was hot to the hand. Rigor mortis well marked. Putrefaction not begun. Lividity beginning round

the neck and on posterior surface of trunk and extremities. No marks or scars, except the two punctures of yesterday's exploration. The body was well nourished. A considerable layer of fat on abdominal wall. The muscles bled readily on section. Skin of hands wrinkled, as after cholera. No escape of fluid from any of the natural openings. Blood effused during autopsy perfectly black, and showed no tendency to coagulate. The diaphragm was pushed high into the thorax. The pericardium was so strongly adherent to the chest wall that its anterior surface was torn in the act of lifting the sternum and costal cartilages from below. It contained a small quantity of pink serum. The right side of the heart was empty, very firmly contracted. The segment of the tricuspid valve corresponding to the ventricular septum was dotted with recent lymph which bound it down to the septum. The left side of the heart was also empty, mitral valve normal. The posterior and left segments of the aortic valves calcified, anterior segment cartilaginous. Notwithstanding this the edges fitted together. The coronary vessels were normal. The aorta from immediately above the sigmoid valves was healthy. The pulmonary vessels were perfectly normal. There were dense pleural adhesions on the left side, none on the right. The right lung was retracted to the back of the thorax, but contained much blood. The left lung was very deeply congested in its upper lobe, soft, tearing readily during efforts to remove it. It, however, contained air throughout, and there was no deposit in either lung.

The temperature of the abdominal cavity was 108°. On incising the peritoneum there was a large escape of brownish fluid free from faecal smell, followed by a copious flow of thick, flaky pus mingled with strings of coagulated lymph. There was no general peritonitis. The liver extended 2 inches to the left of the middle line, and 2½ inches below the costal border in the vertical nipple line. Its upper border corresponded to the lower edge of the fourth rib. The aspirator punctures, which were marked by slight ecchymoses in the substance of the muscles, could not be recognised on the liver surface. The transverse colon was displaced downwards, so that its upper (mesenteric) border lay just below the umbilicus. The omentum, matted with lymph and pus, was not adherent to the small intestine. The stomach occupied an oblique position from without inwards and from above downwards. The liver was much swollen. On the surface of the left lobe was a prominence which when incised proved to be an abscess (1) containing about 1½ ounce of pus. On lifting the liver, rupture of an abscess (2) was seen to have taken place through the square lobule immediately to the right of the pons hepatis. An abscess (3) full of greenish-yellow, very thick pus occupied the left lobe a little to the right of abscess (1) and quite independent of it. The right half of the right lobe formed one abscess cavity (4) which had opened into the general peritoneal cavity by a ragged opening at the level of the tenth rib. On the diaphragmatic surface of the right lobe there was an abscess (5) containing about 6 fluidounces of pus, and at the lower inner portion of the right lobe on the anterior surface there was a minute collection (6) of pus. The aspirator needle had penetrated abscess (4). In the immediate neighbourhood of each abscess the liver tissue seemed normal to the naked eye. The liver weighed 72 ounces after being emptied of pus. The vena cava, strongly adherent to its fossa, was healthy and contained no pus. The gall bladder was moderately full of green bile. The spleen was small, not particularly friable. The stomach was tightly distended with gas. It contained about 10 fluidounces of black fluid in which some minute milk-curd were floating.

This fluid had a curious aromatic odour which pervaded the entire of the interior of the body and especially the kidneys.

The surface of the small intestine was injected in several places and spattered with pus and coagulated lymph. The tube was moderately distended.

The caecum was completely invested with peritoneum, forming an apparent meso-caecum. Whether this investment was continuous with the general mesentery or not was difficult to determine, but from the limitation of the abscess found between its layers, it was probably independent. On lifting the caecum an abscess containing at least 6 fluidounces of putrid pus was found between the layers of

the investing peritoneum. It had no visible connexion with the bowel nor with the appendix. The latter was perfectly healthy, of unusual tenuity, with a fatty expansion at its free end, and had an independent mesentery for about its lower half. The retro-cæcal abscess appeared to have arisen from breaking down of the glands behind the cæcum, three of which external to the abscess were found in a state of cheesy degeneration, while a few others were represented by an indefinite magma. On the internal surface of the cæcum  $1\frac{1}{2}$  inch below the valve, and on the valve itself, were two deep, sloughing, transverse ulcers, corresponding to which there was slight injection of the peritoneal surface, but no real inflammation, still less perforation. The mucous membrane of the small and large intestines, exclusive of the cæcum, was normal. There were no scars, atrophy or puckering to indicate any previous inflammatory affection.

The kidneys were normal.

To this case, in which the history is complete, may fitly be appended the report of another patient who presented himself for diagnosis only.

F. M., male, aged 28, clown in a circus. Seen during the night of the 10th August 1888, when he was suffering from the premonitory symptoms of rupture of the abscess as described below. At this time the liver dulness reached a point 1 inch beneath the nipple, but immediately above the lower border of the costal cartilages, midway between the vertical nipple line and the anterior median line of the body, there was an area about the size of the palm of the hand highly tympanic. Percussion here was felt painfully at a point a little anterior to the anterior axillary line and 1 inch above the lower costal border, and reciprocally. The entire hepatic region was tender to pressure. A couple of hours later he passed an enormous stool of pus, mucus and blood, smelling horribly, and next day, as will be seen, the air-containing cavity was no longer perceptible. At the visit previous to the rupture the temperature was  $99^{\circ} 8$ . Pulse 86. There was no nausea. He was bathed in sweat, but so was everybody. Pain was obviously intense, but there was no symptom of collapse.

Next day he came into hospital for examination, and gave the following history. Father living, aged 90, mother living, aged 86. He has been 12 years in the circus business, having entered it at the age of 16. Great physical exertion is required. When he was 15 the wheel of a heavy dray passed over his abdomen, and ever since he has lumbar pain in wet weather, which he attributes to this. He never had syphilis. He is a heavy drinker, but cannot get drunk. He was quite well up to the beginning of 1887. In April 1887, in Macassar, had a choleraic attack, which he refers to excess in drinking iced beer. He was off duty for two days only, but ever since he feels the effect of any unusually hot weather far more severely than he did before. In the summer of 1887 he began to have dysentery, and for this past year he has rarely had a thoroughly normal stool. In October 1887, while in Batavia, he had much ill-defined uneasiness in the hepatic region, and was told that his liver was somewhat enlarged. In Acheen, in the latter part of November, he began to have constant pain in the hepatic region, right shoulder joint and down the right arm not quite to the elbow. His stools meanwhile were small, dysenteric and very frequent (8 to 20 in 24 hours). He was at this time sensible of much fulness and tenderness of the entire right side. He appears to have had some sort of fit in Acheen, for he was found unconscious on the floor of his room one morning. He was carried to hospital, where he was told that his liver was enlarged, and he was treated with blisters and ice bags. All symptoms disappeared after a week, and he left for Penang, where, after a few days' work, he had to lie by again, and was told that a sluggish liver was the cause of his dysentery. Extremely severe colic was now a prominent symptom. Christmas 1887 was spent at Penang. One night, close to Christmas, he began to experience a "curious tearing-like feeling" deep in the abdomen, corresponding on the surface to the lower edge of the ribs in the right nipple line. After this had lasted about 24 hours, he coughed up a quantity of "sticky mucus in long strings along with blood," and at the same time discharged a "horribly offensive, very copious, loose stool of matter, blood and egg-like stuff." Subsequent stools were of the usual dysenteric character. He felt much better after this experience, and returned to work. Within a week hepatic pain and sense of weight returned, and he

was, on and off, laid up with fever and more violent dysentery until he reached Bangkok, in March 1888. About the beginning of February he had, however, a fortnight or three weeks of comparative freedom from liver symptoms. At Bangkok his mouth, gums and pharynx ulcerated, and during this period he had also a respite. He does not remember whether he was taking any medicine at this time. Soon the ulceration healed, and then the same hepatic pain recurred in the same place as before. This time he vomited a quantity of green mucus free from blood, and discharged an enormous stool of mucus, pus and blood similar to the previous one. After this there was great improvement for a week or 10 days. Then "remittent fever" set in, and he was sent on to Hongkong in advance of his company. He reached Hongkong in the beginning of May 1888, and remained there until the end of July under treatment for dysentery, without any result except that his appetite improved. At the end of July he left with the company for Macao, and here he was subjected to very violent physical exertion, causing great hepatic pain. No special symptoms, however, developed themselves until he landed at Shanghai on the 9th August. On the 10th there was recurrence of the "tearing pain" in the same place as before, and general superficial tenderness. During the following night he passed (as related above), without coughing or vomiting, an enormous evacuation from the bowel in all respects similar to those before described. A couple of hours later he passed an almost normal stool.

His urine never froths on being passed. He has never suffered from cough. His appetite is generally fairly good. His dysentery is not in the least affected by diet or medical treatment. He has lost 21 lb in weight during the past year, having fallen from 169 lb to 148 lb. He has always been able to lie equally well on both sides.

Such was his history. At the moment of admission, four or five hours after the evacuation of the abscess, his temperature was 98° 5, pulse 88, tongue clean, no pain anywhere, either spontaneous or provoked by palpation, percussion, deep inspiration or expiration. He was a well-built, muscular man, with firm flesh and healthy colour, covered with prickly heat. Conjunctivæ not yellow. Tongue moist and clean. No ulceration about the mouth, except a small healing excoriation on the lower lip. At the level of the nipples, at the level of the tenth rib, and midway between these, the right and left semi-circumferences of the trunk were alike, namely, 16½ inches, 16 inches and 14 inches respectively. Percussion normal all over left side, and as far as nipple level on the right side. Both backs clear. On the right side in the nipple line, hepatic dullness began 1 inch below the nipple and reached to 1 inch above the costal border. In the mid-axillary line it began at the same upper level and reached the costal border. There was no bulging, but there was a marked difference between the two sides in the amount of motion of the ribs during inspiration. Anteriorly, dullness extended to the edge of the left costal arch, and to about 1 inch below the tip of the xiphoid appendix. The heart sounds were normal. On the right side there were no pulmonary sounds below a horizontal line 1 inch below the nipple.

Patient left hospital the same day and returned to his circus work. He promised to return for operation as soon as the cavity should show signs of filling again, but he left Shanghai shortly after, and has not since been heard of.

The case just narrated is remarkable in many ways, most remarkable, however, for the slight effect so serious a liver lesion as must have existed produced on the man's general health and ability to sustain violent exertion.

The death from asphyxia was accidental.

K, male, aged 24, marine engineer. Found dead in his bunk on board a steamer. The cabin was very small, and the window and door had been closed. The air smelt strongly of kerosene combustion. The body, the walls and articles of furniture were covered with a layer of soot. A large kerosene lamp on the table had burned out, its chimney was choked with soot, and the wick was seen to have been turned up to the extent of an inch.

The body was still warm, but rigor mortis had set in. Both nostrils were blocked up with soot. The dependent parts of the body and a portion of the upper surface were of reddish-purple tint.

There are other causes of death enumerated in the Burial Return, notably alcoholism and chronic diarrhoea, which are worthy of special illustration, but these can conveniently be dealt with in a subsequent Report.

It will have been observed that there is no visible connecting link between the cases of cholera which occurred during the past season. There is nothing to lead to incrimination of the various sources of milk supply or of the water supply. The latter, I may mention parenthetically, always appears excellent. Roughly tested, as I frequently test it, with potassium permanganate, it always proves singularly free from organic contamination. How long this satisfactory condition will continue is another matter, and one that presses for consideration. For extensive factories and large villages are rapidly spreading down the Yangtszepoo Road, and already reach considerably below the Water Works point of intake. It is impossible that there should not be much fouling of the water from the vicinity of Chinese habitations, and the contaminated water will necessarily be the first to enter the intake pipe as the tide rises. Although it would not appear that much evil resulted from uncontrolled milk supply, the danger of the spread of infectious disease through it is always present. This is a matter well worthy of the attention of the Municipal Councils, to which the right of licensing milk dealers' establishments just as taverns are licensed, of prosecuting unlicensed vendors, and of exercising a supervision over the establishments, would readily be accorded. As it is we are very much in the dark regarding the fabrication of much of the milk sold in the settlements, and householders are extremely careless about taking the only precaution that lies ready to their hand, namely, that of seeing that the milk they buy is boiled before it is consumed. The American milk-boiler is an admirable utensil, which ought to be in every foreign kitchen. Some Chinese dairymen supply excellent milk, but whether milk is obtained from Chinese dairies or foreign, much of the manipulation must unavoidably be left to native coolies. A single vessel imperfectly dried after having been washed in impure water would be sufficient under certain circumstances to originate a dangerous and perhaps fatal epidemic. How little we really know about our milk and meat supply was forcibly brought before the public nearly three years ago by Mr H E HALL. In a letter under date of 25th January 1886, addressed to the *North China Daily News*, I find the following suggestive paragraphs. The recommendation as to occasional analysis is a good one, but without a licensing regulation containing penal clauses it would have but little effect.

How many cows are there in the 22 dairies [nominally inspected] giving milk, and also in the foreign dairies, that, multiplied by the average yield of the cows, will give the number of bottles, and how many bottles of milk are sold daily. I think it will be found on analysing the milk, that the pump is not accountable for the extra quantity sold, but where does it come from, and who sells it? It would puzzle me did I not know the secrets of the milk trade.

As far as native dairies are concerned, anyone with a knowledge of cows can find in them as good milch cattle as can be found in any foreign dairy in the place, and many are as well cared for as if they were owned by foreigners. Many of the Chinese give a great deal of attention to their animals.

If milk from the native dairies has a poor name, let those who buy it not forget that a cheap price is paid, and often a squeeze to servants besides. In these cases the dairyman can say, as to the quality, as the ironmaster said to the buyer of his iron as to there being slag in it "Slag in the iron? O! yes, but there was slag in the price too!"

Milch cows are



reported on according to their outward appearance and the cow-keepers' word. But what about all their surroundings—cleanliness of stalls, water-supply, and the quality of their feed, all of which have a bearing on the milk produced?

Why not have a system of analysis? There are several chemists here who are able and willing to do it. Put all on a fair footing, foreigners and Chinese alike, let the police buy milk from the carts carrying it round or from the coolies' baskets, take the milk at any time they may fancy, and send it, certified only by a number, for analysis, and let the analysis when received be published with the proper name attached.

And as regards the meat supply —

Almost as a rule, before cattle disease is known in Shanghai it has made its appearance all over the country. The cattle dealers buy cattle to sell them again and make a profit, they do not buy them to keep as store cattle. If there is disease in Shanghai anyone can be almost sure that there is disease where the cattle come from, and the risk to the dealer is less in bringing them to Shanghai than in keeping them in the country. If they come to Shanghai, and one of them shows any symptoms of being out of sorts, cattle people do not wait to see how it will go. On the contrary, they kill it and bleed it well, and the carcass when dressed and hung up will show all right, unless the beast has been too far gone. And if it was only in the first stage of sickness, I will defy market inspectors, health officers and all Shanghai to tell if anything has been wrong with the beast. As for the statement of diseased animals being killed or used up in the grease-shops, it is all nonsense.

As for inspection of beef, mutton and pork, that the community can easily and might long ago have rectified. Let them establish a public slaughter-house, with cattle-lairs annexed, and let all cattle intended to be killed for foreign consumption be kept in the lairs for 24 or 36 hours before being slaughtered. If inspection is to exist, the sensible way is before killing and not after.

The want of a public abattoir is one that cannot very much longer be left unsupplied. The filth in many of the private slaughter-houses which I have from time to time visited would be incredible to anyone who had not made a personal inspection, even the most superficial.

No doubt nuisances in the streets have abated, and scavenging is done more effectually than it was a couple of years ago. Still, however, during the hottest hours of the day there is a vast amount of garbage of the most offensive and presumably dangerous kind encumbering the side streets and alleys. It must be admitted that no system of mere scavenging can prevent this unless sweepers are everywhere employed from daylight to dark. This would manifestly be impracticable, but what might be done would be the institution of a system of small fines levied directly by the police, without the inefficient intervention of the Mixed Court, upon all native renters who allow filth to lie in front of their houses after a certain hour. Special power would have to be obtained before such a plan could be inaugurated, but the need for some measure of the kind is urgent. And *à propos* of scavenging I would again draw attention to the truly disgraceful manner in which the scavenging carts are filled. These carts are so constructed that each shovelful or basketful of garbage must be flung several feet into the air before reaching its destination in the cart. Bad enough in wet weather, this stupid and inconvenient procedure is a rich and obvious source of danger in dry weather, when flinging filth into the air implies filling the air for a considerable distance round with dust impregnated with putrid and no doubt often infective fluids. Each cart, too, is piled to so extravagant a height that before it finishes its round its contents fall over the sides, while the surface is blown away in clouds of dust if a breeze happens to be blowing.

I have on more than one occasion drawn attention to the abominable condition of many native houses situated in the main streets of the foreign settlements. But it would appear that even in establishments under foreign supervision the condition is in no wise better. The following graphic description of the American Sailors' Home, in the Woosung Road, laid before the Municipal Council by the Health Officer two years ago, would, apart from the question of overcrowding, still apply, as I know by personal experience, to many foreign-tenanted houses in the settlements.

The proprietor informed me that he has at present 27 lodgers. He showed me on the upper story 23 or 24 bunks, some of them for two men. In one room, about 15 feet by 12 by 10, there were 15 bunks. In the back premises on the ground floor, and practically under one roof, are accommodation for cooking, water storage, the general water-closet, sleeping space for servants, besides accommodation for a couple of pigs. One can step from the kitchen into the water-closet over kitchen refuse lying at the mouth of a drain, within 2 feet of which is stored all the water used in the house and kitchen. Wet floors, wet ground, soil soaked with kitchen refuse and pig litter, filth accumulated on every hand, all in a confined space heated by the sun and a large kitchen stove, afford conditions which must at least be regarded as furnishing abundant opportunity for the multiplication and spread of disease, and constituting a grave source of danger to the remaining overcrowded inmates and the neighbourhood.

Seven cases of cholera were sent to hospital from this den during the summer of 1886

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## CLINICAL STUDIES OF DISEASE AS OBSERVED IN CHINA

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### CHAPTER III.

#### THE ERUPTIVE FEVERS

##### A — SMALL-POX

 SMALL-POX is of remarkably infrequent occurrence among foreign residents at the open ports in China, a fact no doubt due to the sedulous care wherewith vaccination and revaccination are recommended and practised. Foreigners who acquire the disease are for the most part sailors, most of whom, as soon as they get leave on shore, betake themselves to the native quarters where they are exposed to the contagion of small-pox in common with those of many other diseases. Opportunity for acquiring the malady is nowhere lacking, for the Chinese carefully maintain small-pox in activity everywhere by the practice of inoculation, while its spread among the unprotected is assured by the freedom with which patients are allowed to mingle with the general community long before the skin is clear of scabs. I have myself seen a small boy covered with scabs engaged in hanging out foreign clothes on one of the drying-grounds in the settlement, and in every crowd that assembles within the native city during the winter at least one individual will be found in this dangerous condition. The domestic servants of foreigners have no hesitation about visiting their friends who are suffering from small-pox, and the amah who has been granted an afternoon's leave of absence, and returns to busy herself about a nursery of foreign infants, has as likely as not spent a portion of her time of freedom in nursing a native child attacked by the disease. The intimate contact of male servants with their foreign employers while, for instance, serving at table, must often bring contagion very close to us. Our almost complete immunity cannot therefore be reasonably explained otherwise than by the protection acquired through frequent revaccination. It should be remarked that at no port in China has the immunity enjoyed by foreign residents been absolute.

Small-pox being endemic all over China, very seldom becomes epidemic. In either case, its varieties and its course in individual instances offer nothing different from the phenomena observed in other parts of the world. A description of the disease does not therefore fall within the scope of these Studies. The following brief abstracts are, however, worth reproducing.

1 — H, male, aged 39, marine engineer. Vaccinated in infancy, again in 1859, and by myself in 1873. All these vaccinations were successful, and had left distinct cicatrices. In 1866 he contracted small-pox in Singapore, and "nearly died of it." Notwithstanding all this he again acquired the disease in 1875, and died on the 12th day in consequence of implication of the larynx. It was curious to observe that a copious eruption of lichen tropicus, which had existed previous to the eruption of small-pox, remained unaffected by the graver disease. A large pustule which formed just within the orifice of the urethra rendered micturition, either spontaneous or by catheter, extremely difficult.

This strange susceptibility may be further illustrated

2 —Out of a family of seven children, four had had small-pox (two of them after vaccination), one had been vaccinated, but had not had small-pox, and two were unvaccinated. In December 1882, one of these latter contracted small-pox in so mild a form that I was doubtful whether it might not be varicella. Four or five days later, however, the other sickened, and passed through a trivial but unmistakable attack. At the same time an elder sister, vaccinated in infancy, and whom I had already three years before attended through a moderately severe attack of small-pox, showed symptoms, and eventually became very gravely ill. Meanwhile a brother, vaccinated, took the contagion in apparently a mild form, giving no ground for anxiety until the end of the second week, when he suddenly threatened collapse. Wine freely administered brought him through this danger, and recovery was then uninterrupted.

Thus all the seven children have had small-pox. One has had it twice, and two have had it once after successful vaccination.

Only once in my experience has acute mania been other than a symptom of evil omen.

3 —O, male, aged 30, clerk. Showed initial symptoms of small-pox on the 28th January 1883. The disease ran a mild course so far as fever was concerned, the highest temperature registered up to the 14th day having been  $102^{\circ}$ . There was an abundant eruption on the face, which rendered deglutition difficult, but milk and broths were taken in sufficient quantity, and strength was well maintained. On the face the pustules were maturing fairly, but on the trunk, and especially on the legs, they presented a withered appearance, which naturally made me apprehensive. On the morning of the 15th day the temperature was found to have fallen suddenly to  $98^{\circ}$ . The patient was loquacious, and specially emphatic in his protests that there was nothing the matter with him. At noon he was acutely maniacal, requiring three men to hold him down. This condition lasted until the following morning, when quiet was restored. He was then perfectly rational, but much exhausted. Convalescence set in immediately, the temperature never again rising above normal.

There is seldom much difficulty in diagnosing small-pox. Mistakes, however, are likely enough to occur when the initial symptoms are anomalous.

4 —S, male, mate of a steamer. 8th February 1878. Up to the 6th February he had been well. On that day he felt ill during the forenoon, and in the afternoon had a short shivering fit, during which he went to bed. Sweating, with considerable relief, followed, and he took some quinine. Next day (7th) he felt quite well, but had little appetite. On the third day (8th) the phenomena of the day but one before were repeated. His ship was preparing to go to sea, and it was supposed that he had ague. The question was whether he should be allowed to accompany his ship. At my visit (4 P.M.) he was perspiring freely. Temperature  $100^{\circ}$ . No lumbar pain, or pain anywhere else, but there was a general feeling of malaise. Clearly, if he were suffering from intermittent fever, as he himself believed and as I was inclined to believe, the wisest thing he could do was to go to sea. However, he looked as if there might be something more wrong with him than a mere passing attack of ague, and I kept him back. On the morning of the next day (72 hours from the first feeling of illness) his temperature was  $105^{\circ}$ . Suspecting an eruptive fever, I carefully examined his entire surface, but found nothing, but in the evening a crop of papules appeared on the forehead, and the disease followed a somewhat severe course, with high fever and violent delirium, terminating, however, favourably.

The eruption was in this case postponed for at least 80 hours after the first manifestation of fever. Moreover, if from noon on the 9th February the orthodox 48 hours are counted backwards, we come to noon of the 7th, when the primary fever ought to have been beginning, but when in fact the patient was feeling quite well, having, he thought, driven out by quinine the ague fit of the previous day.

This patient had been revaccinated without result three years previously on board an English man-of-war.

## B—VARICELLA

Varicella does not, so far as my experience goes, differ in any respect in China from the disease as observed in Europe. Epidemics are frequent among foreign children at the ports. I mention it chiefly for the purpose of citing a case of *Varicella prurigo*\* observed by Dr UNDERWOOD, at Kiukiang†. The affection is of great rarity. Personally I have notes of but three cases, two of which proved fatal, and the third passed from under observation.

A strong healthy child of fair complexion, fed partly by his mother and partly with cow's milk, had good health up to January 1882, he then being four months old, and teething not begun. In that month, after slight fever lasting one day, an eruption of rosey papules, in all perhaps 60 or 80, and accompanied by itching, was noticed on his head, back, abdomen, legs and feet, the soles of the feet being especially affected. On the breast and arms there was no eruption. Next day many of the papules had become vesicles, filled some with a clear and others with a slightly turbid fluid, and a number of fresh papules had come out. The diagnosis was varicella, and knowing that people had access to the child who came from houses where there were cases of variola at the time, he was vaccinated at once. On the 3rd and 4th days some of the vesicles had dried up, others were now umbilicated pustules, and others that had been broken were covered with a scab, and fresh papules were still appearing and maturing in the same way. Some of the pustules enlarged, leaving small scab covered ulcers, which healed in from 8 to 10 days from the beginning of the eruption. The vaccination ran its course without apparently being affected by the varicella. Except a little annoyance caused by the slight itching and soreness of the pustules, the child was quite well and took food as usual. Fresh papules continued to come in diminishing numbers till the end of March, when the eruption disappeared. In May the eruption returned, and was more troublesome on the soles, toes and legs than before, and the vesicles were larger. With it there was a little itching, but not marked. After a month in the hills the eruption quite disappeared, having lasted six weeks, and the patient's appearance was more healthy. In October, the child being feverish with teething, the eruption returned in the same situations as before. This time the itching was greater, though not a special feature, and the feet were swollen where the papules appeared. At the time this case came under observation no patients with varicella came to the hospital, but small-pox was prevalent in the city.

## C—SCARLET FEVER

So far as these Studies are concerned, Scarlet Fever may be dismissed in a few lines. There is nothing to distinguish the various forms observed in China from those seen in other countries. The disease is certainly rare among foreigners, and for many years after the ports were opened to trade, and medical practitioners established themselves at them, either it was altogether absent or it failed to be diagnosed. The earlier published notices of its appearance are extremely vague.

A case of "suppressed scarlet fever in which the eruption did not appear before the 9th day, but then came out all over the body, with symptoms of cerebral effusion and unconsciousness for 60 hours, ending in recovery," was mentioned, without any detailed description, in a Shanghai Report for 1870‡. In 1873 a fatal case of "scarlatina maligna" in a child one year old was announced from Chefoo§. In October 1873 the first Shanghai case which was carefully observed and reported occurred||. This had been imported from Chefoo during the incubation period. In 1875 the disease was again observed in Chefoo,¶ and in 1876, 1880 and 1884 in Nenchwang\*\*.

\* HUTCHINSON, *Lectures on Clinical Surgery*, vol 1, 15, where many cases are reported

† Customs *Medical Reports*, xxiv, 13

|| *Ibid*, vii, 41

‡ *Ibid*, 1, 131

§ *Ibid*, vii, 19

¶ *Ibid*, xii, 43

\*\* *Ibid*, xii, 28, 29, xxi, 38, xxxi, 2

In 1871 Dr MANSON reported that, up to that time, typhus, typhoid, scarlet fever and measles were all unknown in Amoy.\*

In Shanghai, in March 1882, a Portuguese (European) lady died of pneumonia secondary to scarlet fever, which latter declared itself exactly a week after a natural labour. A doubt was expressed as to whether the disease might not have been a form of puerperal fever, but this question was set at rest by the fact that six children in the house took scarlet fever. While these children were ill, but without any communication that could be traced between the families, two young girls, sisters, were attacked.

In both it ran a severe course, but convalescence was fully established, when one of the girls was found dead in bed, whither she had returned after some slight exertion in her room. A postmortem held next day revealed old and extensive heart mischief, which, being more pronounced on the right side than on the left, may have been congenital. In this case the tricuspid valve was more seriously engaged than the pulmonary, which, according to HARANGER (*Étude sur l'Endocardite congénitale*, p. 10), is exceptional. There was no history of articular rheumatism. Death was due to sudden failure of the heart's action, the right auricle, ventricle and pulmonary artery being gorged with fluid blood, and both branches of the latter containing in addition a quantity of loose coagulum. The second sister, an excessively delicate girl, died 10 days later of acute milary tuberculosis. These were the only fatal cases, and in each death was due to complications.†

In 1885 there was an outbreak among foreigners at Amoy, and in 1887 and 1888 several cases occurred in Shanghai. In one fatal case in the latter year the patient, a lady, had nursed one of her children through scarlet fever. The disease ran its usual course until the 6th day, when the fauces were covered with a diphtheroid membrane, which on removal did not leave a bleeding surface. Violent delirium was a prominent symptom, and there was almost absolute refusal of nourishment. Death occurred on the 11th day from apnoea and exhaustion. Another case, in a Eurasian admitted to the General Hospital from a crowded alley in the native quarters of the French Settlement, appeared to be rapidly and favourably influenced by the administration of bismuthide of mercury. On admission the patient had already been several days ill, the rash was dusky, throat symptoms very severe, swallowing almost impossible. Improvement set in immediately, and on the 8th day desquamation began. Dr DUKES‡ is emphatic as to the effect of mercurial treatment in preventing desquamation. The result was not realised in this case, for the skin peeled freely for several days, and the process was not complete until the 25th day. Albumen was first found in the urine on the 7th day. Although all the circumstances were in this instance in the highest degree favourable to the spread of contagion, very active measures taken by the French municipal authorities were successful in averting the danger, and the case remained singular in the quarter where it occurred.

From all this it appears that while scarlatina has been observed at many of the ports frequented by foreigners, it has nowhere assumed a position of great importance in the nosological tables, but further, that in Shanghai at all events it is steadily gaining in frequency.

#### D—MEASLES

Under the name "Measles" are included at least two forms of disease which are found everywhere in China, and which closely resemble corresponding affections observed in Europe. Of these, the graver form presents differences from its European congener sufficiently marked to constitute it a distinct species.

For several years past the Customs *Medical Reports* have contained accounts of epidemics at the ports, chiefly among children, and of isolated cases. The descriptions given correspond in all essential respects with the result of observations in Shanghai extending over a long period. The disease, therefore, as it presents itself in different parts of China is one and the same.

\* Customs *Medical Reports*, II, 11

† *Ibid.*, XXIV, 41

‡ *British Medical Journal*, 1887, II, 67

Whenever an epidemic has occurred in Shanghai I have invariably learned, either from information received beforehand or as the result of inquiries subsequently made, that a disease of similar character was prevalent among native children in the settlement\*. It is therefore probable that each outburst is due to infection imported into foreign houses by native servants. When once it has entered a foreign family its spread is inevitable, for Chinese measles is as contagious as the ordinary European variety during the catarrhal stage before eruption. At the beginning of the catarrhal stage, when it is supposed that a child is suffering from an ordinary cold, no precautions are taken to isolate it from other children in places of public resort or to exclude it from juvenile parties. The following instance, without proving anything, as the incubation period must be considered doubtful, may be accepted as an illustration of the dangers thus incurred.

Two children, brother and sister, were invited to a large garden party during the last week of March. The girl went, but the boy was kept at home, as he had "a cold." Two days later the eruption of measles appeared on him. Four days after the party one of the children who had been among the guests sickened, and day later three more, and so on, so that within 13 days 17 of the children who had been at the juvenile gathering were either ill or recovering. These were all under my care, and there may have been other cases of which I did not hear. Some of these children spread the infection still wider. The little girl herself sickened 13 days after her brother, and passed through a severe attack, followed by eye troubles of some gravity (superficial ulcers of both corneæ), although she had had Chinese measles of average severity 12 months before.

Chinese measles cannot be classed among the strictly infantile diseases. It attacks adults with impartiality, but is not necessarily more severe in adults than in children. The form of measles which prevails in Japan appears to be identical with that found in China. The following table compiled from information furnished by the members of the "Society for the Advancement of Medical Science in Japan," respecting an epidemic which occurred in Tokio in 1885,† is therefore of almost as much value for my purpose as if it related to a port in China.—

Total number of cases reported	2,726
Number of cases between 1 and 10 years of age	1,557 = 57.11 %
"        "        "    10 " 20 "        "	907 } = 41.82 "
"        "        "    20 " 30 "        "	233 }
"        "        "    30 " 40 "        "	15 }
"        "        "    40 " 50 "        "	11 }
"        "        "    50 " 60 "        "	1 }
"        "        "    60 " 70 "        "	2 }
	= 1.07 "

Dr RIALAN, of the French Navy, has published‡ an account of a little epidemic of Chinese measles which occurred on board the *Vallars*, when stationed at Shanghai in 1884. Eight adults between the ages of 18 and 43 were attacked. Of these, two recollected having had European measles in childhood. In no instance did the course of the disease differ in any important particular from that described below, drawn chiefly from observations taken among children.

\* It is stated in the Japanese report cited further on that "measles was described in China as long ago as 1,000 B C."

† Transactions of the Sei i kwai, Supplement No. 10, October 1885.

‡ *Archives de Médecine navale* Décembre 1885, p. 429.

Related in point of time to each Shanghai epidemic there has been a prevalence of whooping-cough. In many cases I have found measles immediately follow on whooping-cough, and in others immediately precede it. A history of subsequent separate infection is often clear, and doubtless might always be made out. At all events, it may be asserted that here, as in Europe, either disease predisposes to the other. The Chinese form of measles does not protect against measles when a child returns to Europe, nor does English measles protect against it, nor, finally, does it protect against a second attack of the same form.\*

To cite but one instance out of a multitude —

B T, male, aged 3, in 1881 had a severe attack of measles. In 1884, being then in London, passed through the disease. Returning to China in 1885, shared in a family epidemic.

Whatever relation Chinese measles bears to the European form, a like relation appears to be borne to whooping-cough in Europe by the Chinese variety. I have notes of several cases in which children after passing through whooping-cough here have acquired the disease in a perfectly unmodified form after returning to Europe.

I have but four observations sufficiently precise to aid in determining the period of incubation.

In one, a child, after having been exposed during the greater part of the afternoon of the 31st March to the contagion of measles in the catarrhal stage, was through accidental causes isolated. A day or two afterwards the cough, to be presently mentioned, was observed. On the 9th April he had headache, fever and injected conjunctivæ, and on the 13th April the rash appeared.

This (neglecting the occurrence of possibly prodromal cough) would give an incubation period of 10 days, and in three other instances the period could with certainty be fixed at from 8 to 10 days. Further observations on this point are essential.

It often happens that the first symptom observed is a dry, hacking cough, which persists for some days before the patient complains of feeling ill. At the end of a variable time he is found to be irritable and feverish, probably has bilious, very offensive diarrhoea, perhaps amounting to severe purging (occasionally constipation, and still more rarely dysenteric stools), loses appetite, complains of headache, and vomits once or twice in the day. This latter is sometimes a later symptom, often immediately preceding the eruption. The vomiting may be independent of cough, or caused only by the cough†. Hæmatemesis occurred in one of my

\* CHEADLE (*Transactions of the International Medical Congress, Seventh Session* [1881], iv, 4) gives an account of two epidemics of measles which occurred in one London district in 1878 and 1879. Out of 30 cases in the second epidemic, of which he had obtained trustworthy histories, 22 had certainly had measles previously, most of them during the first epidemic 11 months before. Notwithstanding this extraordinary exception, the law as commonly formulated for European measles of course still holds good—that one attack affords almost certain protection against a second.

† The rule is laid down somewhat too peremptorily, that vomiting caused by cough is absolutely diagnostic of either whooping cough or pulmonary tuberculosis. Thus, Professor PÉTER (*Clinique médicale*, 2me éd., ii, 524) says —“Un phthisique est pris d'un irrésistible besoin de tousser, mais en même temps qu'il tousse il rejette ses aliments. Dans une autre maladie encore, on vomit en toussant et par le fait de la toux, dans la coqueluche. En dehors de ces deux maladies, jamais la toux ne produit de vomissement, de sorte que le cas échéant, on n'a plus qu'à faire le diagnostic entre elles deux.” In the case to which I refer the patient was not phthisical, nor had he whooping cough. Here, perhaps, the undoubted relation between measles and whooping cough may be invoked.



cases, a healthy, well-nourished little girl, aged 6. The conjunctivæ are injected, coryza more or less severe is present, there are often distressing fits of sneezing or yawning, the skin is hot, especially at night ( $100^{\circ}$  to  $102^{\circ} 5$ ), the tongue is occasionally dry, and the child may be wildly delirious or only talk in his sleep, and wake several times in flight from a series of troubled dozes. Night delirium occurs commonly in adult cases. In this initial stage the fever is sometimes intermittent, being completely latent, for instance, on the 2nd and 4th days, the rash appearing with fever on the 5th day. Severe pain in the cranial muscles is not uncommon. Convulsions may occur one, two or three days before the eruption appears. Smart epistaxis may be repeated several times. This I have observed in adults, and in a boy of 13 (seen in consultation), where this and delay of the eruption to the 8th day had given rise to the suspicion of typhoid. In young women the catamenia are liable to appear a week or 10 days too soon. As the fever persists the eyes become more injected, there is severe conjunctivitis with considerable lachrymation and photophobia, but the comparative slightness of the nasal catarrh is generally remarkable. The nostrils, however, may be obstructed with dried mucus. From the 2nd to the 4th day of the fever much complaint is made of the throat, and on examination it is found that the soft palate, pillars and back of the pharynx are highly injected and more or less coated with mucus, causing much distress and continual hawking. Simultaneously with or a little before the appearance of the skin eruption minute brilliant vesicles dot the palate and pillars. When the throat is severely inflamed, the tongue, which in average cases is moist and coated with a white or brown fur, bears a close resemblance to that of scarlet fever. In several cases I have found a tenacious muco-fibinous deposit on the tonsils, which was brushed away with difficulty, leaving, however, an unbroken though highly congested surface exposed on its removal. The cough during these early days increases in severity, and is always paroxysmal. Auscultation reveals pretty equally disseminated bronchial râles, but it has rarely happened to me to observe any severe pulmonary complication in children. The sputa are usually tenacious and frothy, but may be muco-purulent. In some adult cases (and probably also in children who cannot accurately describe what they experience) there are early deafness and the sensation of singing in the ears.

On any day from the 2nd to the 8th from the first symptoms of fever or catarrh the rash may appear. Its order of eruption is very variable, but I have several times observed a faint efflorescence on the skin at the external and inferior border of the orbits or on the neck, which may or may not persist, announcing the approach of the eruption, which may then openly declare itself first on the forehead or cheeks (with nearly equal frequency), on the neck, followed by the forehead and face, and then by the trunk, arms and legs, or on the body, followed or not by the face. Thus the face sometimes escapes altogether. Occasionally it is seen first on the wrists, and frequently it appears simultaneously on the wrists and face. I have notes of a series of cases in a family of three children where all three presented the same general symptoms, and two were covered with rash, but at no time, though carefully looked for, could an eruption be discovered on the third\*. The rash is generally thick and somewhat purple in colour on the legs and back, rosy-brown on the face and arms. It is dis-

\* This was a European child. I do not count several failures to discover an eruption in children of Negro parentage.

seminated or in patches, the latter usually on the face with unaffected areas between the patches

In one case I have seen the eruption appear on the face and trunk thickly and on the arms and legs sparsely within the space of two hours on the 7th day of fever. In another the face, trunk and limbs were covered in one night. Cases of very rapid eruption are, I think, prone to end speedily and favourably. The prodromal fever may have been, and usually is, as long as in other cases.

I have never observed a fall of temperature on the appearance of the eruption. On the contrary, when, as sometimes happens, the rash disappears partially or entirely on the 2nd or 3rd day, its reappearance is generally (not always) heralded by a marked rise of temperature ( $1^{\circ}5$  to  $3^{\circ}$ ). I have seen it disappear for 36 hours from the face while its evolution was going on regularly over the body, then reappear and persist on the face until the 9th day, when it finally vanished, the body and extremities having then been clear for nearly two days.

When the eruption is general, but badly developed or livid, pulmonary complications and stupor may be anticipated. Lung trouble usually takes the form of bronchitis or of patches of broncho-pneumonia.

In one case (in adult) the rash which had come out thickly on the face disappeared the same evening. During the night severe bronchitis declared itself, and continued for a week, with profuse mucopurulent expectoration, the course of the bronchitis being apparently unaffected by the reappearance of the eruption, which occurred on the day but one after it had suddenly faded.

There is seldom any regularity in the shape of the patches of eruption, though now and then crescents are to be recognised on the forehead. A mottling or sometimes flea-bitten appearance of the skin is observed in the regions above enumerated, and next day the spots are recognisable as minute papules, which very rarely (in my experience) reach the size sometimes attained by the papules of European measles. It may happen, as in the cases before referred to, that no rash is discoverable, or that no more is found than a mottling of the skin of the face, but the fever (slight or severe), the conjunctivitis, the puffiness of the features, the throat congestion, and especially the appearance of vesicles on the soft palate and pillars, leave no doubt as to the diagnosis. Occasionally sudamina are found on or among the papules, and in this case there is always fine, dust-like desquamation, but independently of sudamina desquamation of this kind or in flakes is usually if not invariably to be noted. Itching or tingling is from the first often intense, preventing sleep. It is best treated by sponging with hot water sharpened with aromatic vinegar.

The rash begins to fade, not always in the order of its eruption, on any day from the 3rd to the 7th dating from its first appearance. It may vanish completely in the course of a few hours, and conjunctivitis often disappears as suddenly as the eruption. Fever usually ceases between the 7th and 9th day of the catarrh, and whether the rash has or has not completely faded. Before disappearing the fever occasionally assumes a frankly remittent type, with maximum temperature usually about  $6^{\circ}$  PM. The rash finally disappears between the 4th and 10th day from its first appearance, but seldom later than the 7th day.

The highest temperature I noted was  $105^{\circ}$ . This was at 8 P.M. on the 1st day of the eruption, in an adult male mulatto, fever having lasted for six days. The next highest was  $104^{\circ}5$ , at 11 P.M., in a little girl, on the 3rd day of the fever, and immediately after the disappearance of a rash which had covered the trunk and arms during the day. Usually the temperature ranges between  $99^{\circ}5$  and  $103^{\circ}$ . A rise of from  $1^{\circ}$  to  $2^{\circ}$  may be anticipated at night, and especially in cases where the throat is severely attacked.

The youngest child that came under my care was aged 24 days.

In this case the eruption appeared on the 5th day, on the forehead. Next day it came out on the arms, trunk and legs, but began to fade from the face, and in a few hours had completely disappeared. There was not much cough, but fever was severe and the rash abundant.

Apart from complications, the longest duration observed was 27 days. The case was not grave. Probable incubation, eight days; invasion, seven days; eruption, nine days; desquamation, three days.

Among sequelæ there is seldom anything of very serious import to be noted. This immunity is no doubt largely due to the good conditions under which most foreign children in China are placed. Peripheral neuritis, evidenced by intense tenderness of the skin of the feet and vague "rheumatic" pains in all the limbs, and accompanied by local cedema, has been observed. I have never seen any form of consecutive paralysis, examples of which are, moreover, of great rarity after European measles\*. There is a tendency to bowel derangement for some weeks after the last symptoms of the disease have passed by, and cough is likely to become inveterate if the weather happens to be damp during convalescence. For both of these conditions cod-liver oil in small repeated doses appears to give the best results. Fugitive swelling of the superficial cervical glands is not uncommon, but it is usually of a trivial character.

In one of the cases referred to above, where there was a semi-fibinous deposit on the tonsils, the cervical glands became swollen and tender 10 days after the eruption had cleared away from the general surface.

I had once to operate in a case where, after convalescence had apparently been fully established for a week, the neck swelled enormously on the left side, and an extensive collection of pus was found behind and internal to the great vessels, between them and the œsophagus.

In an adult, pleurisy of the left side declared itself towards the close of the second week from the date of invasion. Effusion, if present at all, was very slight, and the condition cleared away in a few days under cupping and the administration of salicylate of sodium.

In a case already mentioned, superficial ulcers on the corneæ demanded a prolonged constitutional and local treatment before recovery was complete.

I have been unable to get any trustworthy account of the natural history of the disease among natives, but one can hardly suppose that Chinese children are exempt from the serious troubles which frequently follow measles among ill-nourished children in Europe.

I can cite but one instance of well-marked relapse.

\* Instances of acute ascending paralysis are given by LANDOUZY, *Des Paralysies dans les Maladies aiguës*, p. 190, with references to other forms, especially paraplegia. For a fatal case of paraplegia in an adult, see *Archives de Médecine et de Pharmacie militaires*, Novembre 1886, p. 386.

Here, after complete convalescence, 25 days after desquamation had begun, the tonsils inflamed and suppurated, there was much lachrymation, and the rash reappeared as extremely minute, closely-set papules all over the body, except on the forehead, forming distinct whorls on the chest, and itching severely. The highest temperature observed was  $102^{\circ} 3$ , at noon on the 4th day after the reappearance of fever.

It may be noted that measles in the host disagrees with lumbricoid worms that happen at the time to be guests. In many of my cases, as the attack of measles was passing off several dead round worms were expelled.

In September and October 1871\* an ephemeral exanthem made its appearance, and affected large numbers of natives and foreigners, adults and children. It had previously been unknown among foreigners, but the Chinese professed to recognise it as *Féng-sha*,† or “wind measles.” Occasionally, but not frequently since then, this disease has presented itself, always in epidemic form, and always among the Chinese before foreigners are attacked. It is difficult to determine the period of incubation, but it would seem to be at any rate not less than four days. The period of invasion is marked by headache, slight vertigo, pains in the back and limbs, nausea and general malaise, but seldom by any very notable fever. Exceptionally the temperature runs up as high as  $103^{\circ}$ . There is but little catarrh, perhaps more or less conjunctivitis, always cough, generally constipation with furred tongue. These symptoms last for two days, and on the 3rd day the eruption appears all over the body, and is frequently attended with intense tingling. It consists of small, flat papules resembling measles, but more 10sy and lacking configuration in the patches. On the 3rd day it begins to fade, and continues to disappear until the 5th day, when a very fine dust-like desquamation sets in. Facial congestion is but slightly marked, but on the back of the pharynx, and extending up the posterior nares, flabby granulations in large, flat, reddish patches are almost invariably to be seen.

This was the description which I gave of the disease in 1871, and observation of subsequent epidemics has not given me anything to add to it. In the 1871 epidemic, however, it was noted that on the 3rd day more or less swelling of the palms and soles frequently occurred, but there was no affection of the small joints, and no marked exacerbation following a period of remission.

Convalescence is generally complete in a day or two after the disappearance of the eruption, but is sometimes prolonged by bronchitis.

Contemporaneously with the first epidemic among foreigners in Shanghai, an affection of very similar if not identical nature broke out at St Helier's. Dr DUNLOP, of that place, thus described it —‡

Early in the spring (1871) a great many patients, children and adults, applied to me on account of an eruption which had suddenly appeared on the face, trunk and extremities. They had no other symptoms of any kind [see, however, below], and said that they felt perfectly well. This eruption varied in colour, being in some cases of a darker and in others of a lighter red. I also observed that in many places, especially on the face and extremities, three or four of the puncta had coalesced, forming an irregularly shaped patch.

\* Customs Medical Reports, II, 41

† It has since been described in the *China Medical Missionary Journal*, by Dr D. J. REID, under the name of “*Rubella sinensis*.”

‡ *Lancet*, 1871, II, 464

In some of the Jersey cases, Dr DUNLOP admits that there were sore throat, derangement of digestion, injection of the conjunctivæ, lachrymation, coryza and slight cough, fever also being well developed, but as a rule there was no marked constitutional disturbance. No special treatment was required, and this likewise is the case in China.

This disease, whatever its European congener may be, is specifically different from both European and Chinese measles, so far as that difference can be inferred from the fact that neither disease confers immunity from either of the others.

Although, as described on preceding pages, measles in China is on the whole a benign disease, it may assume a formidable and even fatal character, as in the following case where it was complicated by pregnancy.

A young woman at the end of the 5th month of her first pregnancy became feverish on the 20th December 1882, which she attributed to a cold caught, as she thought, a day or two previous. She sought advice on the 23rd, when she complained of constipation and of recurrent severe pain in the lumbar region, which, however, left her spontaneously for a couple of hours at a time. Late at night on the 25th she miscarried of a dead fœtus, and her skin was then, as well as could be made out in a very bad light, covered with a faint efflorescence. Early next morning purplish patches were distributed over the face and entire body. There was severe lachrymation, much lumbar pain, and a temperature of  $102^{\circ}$ . At 3 P.M. the eruption had retroceded, but the temperature had risen to  $103^{\circ}$ . The throat was now painful, but restlessness prevented a good view being obtained. Milk was taken freely. Delirium set in during the night. The following note was made on the morning of the 27th: "The rash, which closely resembles that of measles, except in colour, is on the limbs confined to the joints and their neighbourhood. Here it is in large, purplish patches, with minute vesicles scattered over them. The chest, abdomen and back are closely covered with patches similar to those near the joints. There is nothing on the forehead, but the nose, cheeks and chin are covered with a reddish efflorescence, less purple than the patches on the trunk and limbs. Pain relieved. No uterine symptoms." In the evening the lochia, in spite of frequent injections, were offensive. The patches of eruption were everywhere becoming confluent and more livid. Tongue brown and dry. Cough and viscid expectoration. Congestion of bases of lungs. On the 28th and 29th the lochia were natural. Restlessness and delirium (which occasionally became violent) were now marked symptoms. Headache severe in the intervals of delirium. Petechiæ on forearms, legs and back, eruption gradually becoming less distinct. Breathing superficial over anterior surface of chest, inaudible at apices and over back. During entire illness nourishment and wine were taken frequently, though in small quantities, but the total amount swallowed was considerable. There was no diarrhœa. Urine was scanty, but contained no blood or albumen. Patient died in the afternoon of the 29th.

The symptoms in this case might be attributed to almost any eruptive fever of a pernicious character, but they were no doubt due to measles, as several children living in the same house had had measles just before, two were ill with it during the patient's illness, and one more developed it the day after her death. In none of these cases among children were the symptoms specially severe.

#### E—DENGUE

In 1872 Dengue appeared for (so far as was known) the first time in China at Amoy among the natives. Business was interrupted or seriously interfered with, for within six weeks "it was a rare thing to meet a native [or foreigner] who had not suffered"\*. The epidemic

\* Dr MANSOY, *Customs Medical Reports*, IV, 12

spread along the coast and reached Shanghai and subsequently Chefoo without, however, anywhere becoming so widespread as in Amoy. It was supposed that the starting point had been Singapore or some Indian port. Since 1872 there has been no epidemic, but isolated cases have frequently been observed, and I suspect that I, and perhaps others, have not seldom fallen into confusion between catarrhal fever of influenza character and dengue. To both are common two or three days of initial fever with vertigo, intense headache and backache, sweating and occasional epistaxis, a period of remission, and a second or perhaps third period of fever. Where catarrhal symptoms predominate, one is apt to diagnose influenza, where there is much injection of the skin or a diffused eruption or severe pains in the joints of the hands and feet, dengue suggests itself. Desquamation has been described, but I have not observed it except in rare instances, where the eruption has consisted of extremely minute, discrete, but thickly-set vesicopapules. Dr MANSON (*loc cit*) sets the incubation period at, in some cases, not more than 24 hours.

The initial fever may reach  $105^{\circ}$  or  $106^{\circ}$  on the 1st or 2nd day.

Among the sequelæ of the Amoy epidemic Dr MANSON<sup>+</sup> enumerates persistent but paroxysmal rheumatic-like pains in the limbs, lasting for months, worst in the morning, causalgia, gradual impairment of sight, "debility, dyspepsia, rheumatism, paralysis of certain groups of muscles, and perhaps insanity." This serious experience is, no doubt, altogether exceptional.

#### F—TYPHUS FEVER

It is open to anyone who has sufficient grounds in observation to justify him in forming a judgment to cast doubt on the existence of Typhus Fever in China. In 1884 I noted—†

A form of fever which might easily be taken for typhus in its last stage was of frequent occurrence among the Chinese from July onwards. Several cases were brought to hospital after having been given up by native doctors. I saw a considerable number in private, where the patients were directly or indirectly connected with foreigners, but in all but one (which recovered), death was imminent when I was called. This fever may be typhus. There is a petechial eruption identical with or closely simulating the typhus rash as seen in advanced cases. But the absence of a complete history in any instance prevents me from arriving at a decisive opinion, while, considering the crowded, filthy and ill-ventilated condition of the houses in which all the sufferers referred to were found, one would expect that if it were typhus the disease would rapidly become epidemic. Nothing of the kind, however, occurs. I have never been able to trace the spread of this fever by contagion, although in many instances the room in which the patient was lying was occupied by several other persons. It therefore seems probable that such cases as I have seen were instances of neglected remittent fever.

The same doubt weighs upon all writers who deal with tropical diseases. NIELLY, citing THOREL, asserts that—‡

[Le typhus pétechieux] est endémique dans les forêts de l'Indo-Chine, pendant la saison des pluies, les indigènes de Siam, du Laos, du Cambodge et de l'Annam le nomment "*fièvre des bois*" et le redoutent beaucoup.

\* *Customs Medical Reports*, i, 7

† *Ibid*, xxvii, 31, xxviii, 7

‡ *Éléments de Pathologie exotique*, p 115

The phrases in *italic* are sufficient to suggest the suspicion that this "typhus" is in truth of malarious origin

Indian authorities are explicit MURCHISON\* refers to the difficulty of distinguishing with certainty between typhus and certain forms of tropical remittent which—

Occasionally present symptoms having a close resemblance to those of typhus, such as a small, soft pulse, dry, brown, retracted tongue, dorsal decubitus and great prostration, low muttering delirium, tremors and subsultus, contracted pupils, and even petechiæ Quinine, which is often a specific in malarious fevers, has no effect in shortening an attack of typhus

It has often been laid down that without the eruption a certain diagnosis of typhus is impossible But this test is fallacious, as likewise is that supposed to be supplied by the action of quinine Upon this latter CHEEVERS pertinently remarks—†

When a patient is brought absolutely and irrecoverably death-stricken by a malarial fever, quinine can no more avail to put the fever out than all the fire engines in London can save a tallow factory which has been burning for an hour

Referring to the question whether typhus does or does not occur, CHEEVERS says—‡

I do not believe that true typhus occurs in any part of Bengal Proper Questionings have from time to time arisen as to whether the Budwan fever, which most observers regarded as a paludal remittent of great severity, was not typhus The most striking point is that in 11

out of 12 [suspected] cases, there was a "mulberry rash," but petechiæ are seen in several Indian fevers There was no evidence of contagion I hold with Drs MOREHEAD and MURCHISON, that proof is wanting of the existence of genuine typhus in any part of India If we put aside the exanthem—which, if this fever occurred in dark-skinned natives, might not be apparent,—there are few things in disease which more closely resemble each other than an advanced case of Indian paludal remittent without bowel complication, and a case of genuine typhus Assuredly I know no mode of examination by which I could distinguish one from the other §

Finally, MOREHEAD, speaking of "adynamic remittent of suspected infectious character," is of opinion that—||

Though with our present greater attention to cleanliness and ventilation remittent fever is not infectious, it does not follow that it may not become so from overcrowding and neglect

This is to overturn the only barrier that appears to separate neglected malarial fever from typhus, and is, I think, somewhat overstrained MURCHISON, in fact, believed that MOREHEAD's infectious adynamic fever was the plague

It is clear that the term typhus has been loosely used everywhere in the East to designate any form of fever or any disease presenting profound typhoid symptoms There is, it is true, no sufficient *a priori* reason why typhus should not be endemic in any one given region as well as in any other, and merely require drought or floods, with their inevitable accompaniments of bad crops, famine, overcrowding and filth, to call it into activity "The history of typhus is the history of human misery and neglect," but it is not the only fruit of misery, and doubtless typhus, typhoid, remittent and relapsing fevers have all from time to time been described as

\* *A Treatise on the Continued Fevers of Great Britain*, 2nd ed., p. 229

† *A Commentary on the Diseases of India*, p. 83

‡ *Ibid.*, pp. 81, 83

§ "Typhus," however, now appears without any qualification in the Indian official sickness and mortality returns

|| *Clinical Researches on Disease in India*, p. 155

typhus by observers who have seen these various diseases only in the latest stages, or who in their student days had had no opportunity of studying true typhus in one of its natural homes

On the other hand, inasmuch as we have reason to believe that typhus and plague can originate *de novo* under deplorable hygienic conditions, there is nothing incredible in the supposition that in tropical and sub-tropical climates a typhous poison may from time to time be manufactured, but for some unknown reason fail to be elaborated to the point of reproducing itself. Even in the middle of the European settlements at the ports the Chinese create for themselves conditions the most favourable imaginable to the origination and spread of disease. Thus, one December afternoon a few years ago,—

I was called by a Cantonese girl to see a woman and child supposed to be dying in a native house in one of the main streets of the foreign settlement at Shanghai. The room into which I was introduced was about 11 feet high, 11 feet long and 9 feet wide. It was lighted and ventilated only by the door, which led into a narrow passage. In it was a stove which threw out an overpowering heat, a kerosene lamp, a four-post bedstead and a native bed on trestles. In the larger bed was a little boy dying of diphtheria, and a woman engaged in tending him. A second woman slept in the bed at night, as I was informed. The child died about an hour after I left. On the trestle bed was a young woman dying of typhoid fever, and it was evident enough that she had no control over her evacuations. She died during the following night. Her bed was shared by a friend who it was said looked after her, but who did not happen to be present during my visit. When I entered the room an old woman was engaged exercising the two patients, and I was told that her business was to go from house to house when sickness was present, and drive devils away. There appeared to be a constant stream of visitors, at least five women having come into the room during the few minutes of my stay.

The wonder, therefore, is not that anomalous fevers of typhus type should occasionally present themselves among foreign residents at the ports. It is that, considering the many points of contact between natives and foreigners, epidemics are not of frequent occurrence.

Whatever its correct designation may be, it is certain that Chinese frequently and foreigners occasionally are attacked by a disease characterised by typhous odour, flushed and dusky features, bewildered expression, injected conjunctivæ, contracted pupils, dry brown-crusted tongue, sores on lips and teeth, livid eruption on skin (sometimes absent), hurried, or slow, irregular breathing, dorsal decubitus, small, rapid pulse, high temperature, deafness, thirst (sometimes absent), headache and backache, constipation, dark, scanty urine, sleeplessness, stupor, delirium, muscular weakness and inco-ordination, subsultus, involuntary evacuations, or retention of urine, cough, with scanty, frothy or mucilaginous, sometimes blood-stained, expectoration. The invasion is frequently marked by a series of rigors. This enumeration of symptoms, taken from notes of cases, would form a tolerably complete picture of typhus fever but for the lack of any evidence of contagion. This element is, however, as will be seen further on, not always absent, and when present there would seem to be no reasonable doubt that the disease under observation is true typhus.

I have notes of but one autopsy—a case proving fatal on the 17th day, in a male European, aged about 40,—and this need not be reproduced, inasmuch as there were no special lesions observed. There was early, intense, fugitive rigidity, the muscles were remarkably soft and friable, the blood was everywhere fluid, and all the viscera were dripping.



From every part of China for the last 15 or 20 years accounts have been received of the occasional prevalence of a fever associated with misery, overcrowding, filth and insanitary conditions in general. Dr WONG\* describes a "spotted fever" observed in Canton, though spots are seldom visible, and he concludes that—

These are mostly severe remittents taking the continued or typhus form. It would seem as if some of the cases are really typhus. A native physician of long practice here told me that in some cases there is a crisis on the 7th day, after which the patient may get well without medicine.

From Amoy, Dr MANSON† has reported cases "in some respects resembling mild typhus, but wanting many of the features of that disease, certainly not typhoid and certainly not malarial." He describes the symptoms as—

Beginning with rigor, fever, pain in the side, followed in four or five days by prostration, muscular pains, tenderness of epigastrium, furred tongue, severe headache and a red exanthem covering the entire body in small spots not elevated, and disappearing on pressure. Crisis by sweating about the 13th day, disappearance of eruption, and defervescence about the end of the 3rd week.

In Shanghai, this fever as I have described it proves, I am informed, fatal in the majority of cases occurring among natives, and though luckily rare among foreigners is, when it does attack them, extremely formidable. During the half-year from April to September 1871, four fatal cases occurred, and five deaths were attributed to it in the corresponding six months of 1872. No case, or at least no fatal case, was then observed until February and March 1878, in each of which months one death was recorded. Next, in February and March 1881 three patients succumbed. All three were non-resident, and the first case, that of a sailor on board H BMS *Pegasus*, was imported from Chinkiang, or rather from the bank of the river opposite Chinkiang, where a typhous fever had been prevalent for some months, and close to which the *Pegasus* was for a time moored. Whether contagion from this first case accounts for the other seizures, I am unable to say. In 1883 and 1884 a few cases were diagnosed, and four deaths were returned in August 1884. All occurred among non-residents, probably sailors. One case in a Macao Portuguese, in December 1885, and one in a non-resident, in May 1887, complete the short list of fatal cases during 18 years. The small number of deaths is of itself sufficient to indicate the infrequency of the disease among foreigners, and it is significant that nearly all the deaths have occurred among sailors. Liberated for a few hours from ship life, and obliged to seek pleasure where it can be found most cheaply, these poor fellows prowl about the lowest slums, and occasionally penetrate into the native common lodging-houses where at night beggars, vagrants and thieves are packed into sunken and unventilated rooms in steaming masses sufficient to give origin to any form of disease dependent on filth and overcrowding.

From Chinkiang typhus fever was first reported among foreigners in 1881. A fatal case occurred on board H BMS *Pegasus*, which was anchored to leeward of a small native town where there had been a considerable mortality from famine fever. One member of the Chinkiang foreign community likewise was attacked, but recovered.

\* Customs Medical Reports, iv, 70

† *Ibid*, xx, 7

Typhus fever, or a fever whose "prominent symptoms are similar to those of typhus, but with less regularity in their course," was reported to have been imported into Chefoo from Japan in 1875\*.

It is very contagious, often affecting a whole crew in the course of a few weeks. The rash is of mulberry hue and appears early. There is often diarrhoea at the critical period. There is hæmorrhage (from the bowel) and ulceration, with perforation in some cases. There is a deviation from the typical typhus in the duration of the disease, desquamation not taking place at such regular periods. Hiccough sets in early, and is often severe. Certain nervous symptoms persist it may be for weeks after convalescence. It is not uncommon to have facial or laryngeal paralysis even after slight attacks, and with a very slow tendency to disappear. Out of about 50 cases I cannot recall more than two deaths. A postmortem in one of these showed intense congestion of the cerebral membranes, the spleen was soft, there was extensive peritonitis, which proceeded from perforation of the bowel.

These were clearly cases of typhoid fever in which the colour of the rash led the observer astray. Later on, however, in 1878 and 1882, epidemics of a disease occurred among the natives, which was characterised by sleeplessness, violent delirium, tremors, floccitatio, typhus rash, etc., and two or three foreigners were attacked.

An epidemic of like character was reported from Tientsin in 1878, in the course of which 18 resident foreigners fell ill, of whom five died. The disease was characterised by sudden onset, rigor, nausea, hot skin, typhous odour, muscular prostration and a faint, irregular, dusky rash, which appeared between the 4th and 8th days.

A fatal case of typhus was announced from Peking in 1871, but here again the observer was probably mistaken in his diagnosis, for he explicitly states—†

It was distinctly traceable to the opening and cleansing of a drain in the [British] Legation which the deceased undertook to superintend.

On the only other occasion in which typhus was reported from Peking—‡

At one of the mission stations it broke out, attacking five individuals, of whom two died, one with head and the other with chest complications. The disease had been [or was supposed to have been] earned by a country convert. Although there were a good many foreigners going in and out about the compound, none were attacked.

Finally, at Newchwang a contagious fever with all the characteristics of typhus has been constantly observed since 1876. Nearly all the cases occurred among the Catholic missionaries, who are exposed to many of the privations and unhygienic conditions under which the natives live. Here the symptoms recorded are sufficient to remove any doubt as to the diagnosis —

Severe fever, mulberry rash, wild delirium, excessive nervous prostration, subsultus, carphology, cardiac failure, early muscular weakness and tremor. Where recovery took place, false angina linked to gastric disturbance, anæsthesia, amblyopia, and mental weakness are noted among the sequelæ.

In 1882 there was one case (fatal) in the foreign mercantile community, and in 1883 a second, which ended in recovery.

\* Customs Medical Reports, xi, 3

† Ibid, iii, 7

‡ Ibid, ix, 40

It is obvious, therefore, that all along the extensive coast line of China, where foreign settlements are dotted, a fever occasionally prevails epidemically among the natives which in its main characteristics is indistinguishable from typhus, that most of the conditions necessary to an outbreak are constantly present among the natives, that it is contagious, but not virulently so, that it is identical with or closely simulated by neglected malarial fever of adynamic type, and that foreigners who do not actually look for it in its haunts are tolerably certain to escape it

Typhoid Fever, which no doubt strictly should be included in the group of Eruptive Fevers, can more conveniently be considered in a separate chapter

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CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31<sup>ST</sup> MARCH 1889.

37th Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,  
AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON P S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1891

[Price \$1]



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death

b—Diseases prevalent at

c—General type of disease, peculiarities and complications encountered, special treatment demanded

d—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

e—Peculiar diseases, especially leprosy

f—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Di \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

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I am, etc.,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Takow,*  
*Kuikwang, Amoy,*  
*Chinkwang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, 1st September 1891

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Tientsin, pp 1-5,

Report on the Health of Canton, pp 6, 7, each of these referring to the year ended 31st March 1889

Report on the Health of Wuhu for the eleven months ended 31st March 1889, pp 8-10

Report on the Health of Shanghai for the half-year ended 31st March 1889, pp 11-48

Clinical Studies of disease as observed in China, pp 49-87

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
*PEKING*

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The Contributors to this Volume are —

A IRWIN, FRCSI	.	Tientsin
J F WALES, BA, MD, CHM	.	... Canton
R H COX, LK & QCP, LRCSI		Wuhu
R A JAMIESON, MA, MD, MRCP	. . .	Shanghai

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## DR A IRWIN'S REPORT ON THE HEALTH OF TIENTSIN

For the Year ended 31st March 1889

WITH the exception of an outbreak of cholera, which proved fatal in three cases, the health of the community has been fairly good. None of the fatal cases were seen until collapse had set in and treatment was simply hopeless.

The mortality amongst the native population was very great, and Dr LIU, of the Viceroy's staff, tells me that amongst quite a number of cases which he saw he only knew of two recoveries. The prevailing characteristic of the epidemic was the suddenness of the attack, the patient vomiting and purging a few times and then rapidly passing into a state of collapse.

During the hot weather a mild form of malarial fever was very prevalent, and change of air as usual proved the best remedy. In the latter part of the autumn an epidemic of whooping-cough set in. About 25 children were attacked. All the cases did well.

In some of the severe ones sulphurous acid fumigation appeared to give great temporary relief, but in none did it appear to cut short the progress of the disease.

An interesting case of empyema, following an attack of right pleuro-pneumonia, came under notice.

In this case the value of frequent aspirations was well shown. Some quarts of pus were drawn off at various times, and the collapsed lung allowed to expand until it filled the pleural cavity. A drainage tube was then put in, and the case ultimately did well.

I am indebted to the late Dr MACKENZIE for the following interesting notes of cases treated at the Viceroy's Hospital —

### GANGRENE OF THE EXTREMITIES, RESEMBLING IN ITS NATURE SENILE GANGRENE, BUT OCCURRING IN THE YOUNG AND MIDDLE-AGED, PROBABLY DUE TO CHRONIC ERGOT POISONING

We have notes of 10 cases of slowly-advancing gangrene, looking in appearance very much like senile gangrene, yet all occurring in men under 50 years of age. There are invariably well-marked manifestations of mal-nutrition. The patients are anæmic, cachectic-looking, and frequently suffer from diarrhoea.

The same symptoms are pretty much common to all. Tingling and numbness of the feet and legs, lasting for months, followed by pain, slight at first, but becoming excruciating as the disease advances. With the pain, redness of the skin and tenderness to the touch are noticed, beginning generally in one of the toes. At a later stage discolouration of the skin is seen, the redness assuming a more dusky aspect, and becoming mottled, green or blue. Then the epidermis separates from the parts beneath, breaks and allows of the escape of a bad-smelling discharge. Finally, the toe or toes become perfectly black and hard—actually mummified. The same state of things continues in the neighbouring parts until in many cases a line of demarcation forms. When they have applied for treatment there is always found

some part perfectly black, hard and insensible, beyond this a discoloured area, and then, around the line of demarcation, a reddened congested portion intensely painful and tender

As to the cause of the disease, some trace it to walking in flooded fields, and this may be the immediate cause in some cases. One thing seems clear, and that is, that they have been subsisting for a long time upon improper food. Case 2 is a good instance, showing how the disease can be stayed under nourishing food. A young man of 24, he looked when admitted as if he must lose the big toe of his right foot and the middle finger of his left hand, both parts were affected and appeared to have, if not quite, yet almost, lost their vitality, yet under good food the vitality was fully restored.

There is evidently marked contraction of the arteries of the extremities affected. This is shown by the fact that after amputation, say of the fore part of the foot, there may be no vessel requiring ligation, only a general oozing of blood. Even when the entire foot has been removed, perhaps only one vessel, and that a small one, needed ligation. Case 2 brings this out in a very interesting manner. The middle finger of the left hand was involved, though it was not quite dead, and, as might have been expected, the radial pulse on this side was very small, it was perfectly thready, resembling an artery of half the size, while the right radial, where no disease existed, was full and strong. Case 7 is another one in point. Here the index and middle fingers of the right hand were affected 15 months ago. Complete death of the parts supervened, separation took place and the stumps healed. Now, there is distinct atrophy of the right arm as compared with the left, the radial artery is absent from its normal position, while a feeble, thin pulse beats at the back of the radius. He declares upon the authority of Chinese doctors who frequently examined him, and who are no novices at feeling the pulse, that two years ago his right pulse beat in the front of the arm, in the corresponding place to the left, which is normal in every way. They told him that his pulse had changed its position to the back of the arm. This thin pulsating vessel behind the radius I take to be an enlarged branch carrying on the collateral circulation in consequence of the blocking of the narrowed radial by a thrombus.

The redness, always present at some stage of the disease, denotes that venous congestion or dilatation of the veins is an accompaniment of the changes taking place. Indeed the disease appears to spread by means of a low form of inflammation which gradually destroys the vitality of the tissues attacked. I have not noticed any marked œdema. Some of the worst cases suffered from fever.

I have come to the conclusion that the gangrene here described is probably caused by eating grain which has been attacked by the ergot fungus. I have no actual proof of it, but my reasons for so thinking are —

First, that the symptoms correspond exactly with those present in well-traced cases of chronic ergot poisoning—gangrene from eating ergotised grain having been very common at one time in certain parts of Europe. Ergot attacks not only rye, but wheat, barley, millet, etc. Here in North China the people are great bread-eaters, bread, or some preparation of flour, holding about the same position in the dietary of the people of the north that rice does in the south. Rice being mainly imported from the south is too expensive a luxury for general use.

Again, the people recognise a diseased condition of the grain common in wet seasons or when the fields have been flooded, and they state that this is invariably eaten in common with the good grain, they being too poor to set it aside as unfit for food. The districts from which the patients have mostly come have been impoverished by repeated floods.

CASE 1 — *Gangrene of Right Foot* — TS'AI CHEN-LUNG, aged 29, farmer, from Ts'ang-chou

13th October 1886 — Admitted to hospital with the following history. He had suffered from pain in the right foot for two years. Without apparent cause, the big toe first and then the neighbouring ones became discoloured and very tender. The big toe is black and mummified, and has been so for two months, the other toes are discoloured, cold and bloodless. A line of demarcation is showing itself in the fore part of the foot, near the roots of the toes. Foot red and much congested in the neighbourhood of this line. Pain in the foot very intense.

16th October —As the pain seemed to be wearing the patient out, and at his earnest request that an operation should be performed, I did PIROGOFF's amputation of the foot under antiseptic precautions

22nd October —Wound clean, but showing signs of a return of the disease in the flap In great pain, requiring morphia

23rd December —The flap has entirely mortified, and is gradually separating Still needs morphia injections

24th January 1887 —The slough has wholly come away and the wound is granulating

13th March —Wound has cicatrised completely over the end of the tibia, and though not a good stump for walking on, is yet free from pain and without any sign of the old disease

Left for his home

26th December —I saw this man at his father's farm He is in good health, gets about with one crutch easily, and has no pain or other sign of recurrence of the disease

CASE 2 —*Gangrene of Left Foot, with Disease commencing in the Right Foot and in Middle Finger of Left Hand, Amputation of Left Leg, Recovery* —YIN CHÊN-HSING, aged 24, peasant, from Ts'ang-chou

4th April 1887 —Admitted in the following condition Left foot —In the third, fourth and fifth toes the bones are black and bare, the sole of the foot adjacent is black in parts and discoloured in others There is a huge excavation in the heel from which a slough has come away, surrounding this cavity the skin is congested, hot, painful and intensely tender to the touch The big toe and the dorsum of the foot look healthy The tibial arteries cannot be felt This condition has been existing more or less for six months Right foot —Four months diseased The big toe is discoloured, very tender and extremely painful

The middle finger of left hand is painful and the skin discoloured and shrivelled over the terminal phalanx The radial pulse on this side is quite thready, while the right radial is full and strong The difference is very marked

The patient is anæmic, and requires morphia to relieve the pain

12th April —Operated under ether, amputating the left leg above the ankle joint Dressed with carbolic gauze and marine lint

14th July —General health has greatly improved He has gained flesh and is looking much stronger The stump healed without any bad symptom, though the track of the drainage tube healed slowly The stump is a good one and quite free from pain The finger is now quite well The epidermis came away and the put recovered its full vitality So with the right foot, under good food the toe recovered its normal condition

CASE 3 —*Dry Gangrene of Big Toe of Left Foot* —CHANG WEN-YI, aged 42, farmer, Wu chiao-hsien

19th April 1887 —Admitted, with big toe dry and black Disease of five months' duration Amputated, removing portion of metatarsal bone at the same time

24th April —A small portion of the flap has sloughed

10th May —Goes out with a healthy granulating wound

CASE 4 —*Gangrene of both Feet, two Years* —AN FÊNG-HO, aged 40, farmer, Tung-kuang-hsien

9th May 1887 —Admitted Right foot —Dry and mummified, leaving only the heel free Line of demarcation has formed just in front of ankle-joint Very severe pain Left foot —The bones of the toes exposed and bare

This patient is very badly run down Has had diarrhoea for some time

14th May —His diarrhoea having stopped, removed the exposed phalanges from the left foot by simply separating them from their attachments

30th May —The wounds are granulating well in the left foot

1st June —The left foot is now well, but he is not in a fit condition to stand the serious operation of removal of the right foot He suffers much from flatulent distension of the bowels Patient sank from exhaustion on the 26th June

CASE 5 — *Gangrene of Right Foot* — SU TÊ-YUEN, aged 37, farmer, Lao ling-hsien

19th May 1887 — Admitted The fore part of the right foot has fallen off, leaving a large surface of the os calcis protruding The skin is absent from each side of the ankle-joint The part is very painful It commenced in the usual way numbness for many months, then gradually increasing pain, change in colour, death of the toes first, then of the whole anterior portion of the foot A line of demarcation formed and the main part of the foot fell off, but the stump was unable to heal The left foot was attacked 10 years ago The toes fell off, but the parts cicatrised

The patient's state of health is very bad He has had diarrhoea and fever for a long time

26th May — Amputated in the lower third of the right leg Dressed antiseptically

31st May — Gangrene returned in the flaps Diarrhoea has returned

The gangrene spread steadily up the leg to the trunk

19th June — Death

CASE 6 — *Gangrene of Second Toe of Left Foot* — WANG HSIAO HSIEN, aged 34, coolie, from Hêng-shui-hsien

29th May 1887 — Admitted Usual history, dating from five months back Amputated toe, dressed with marine lint

24th June — Dysentery set in

8th July — Dysentery cured with difficulty Had to give frequent 20 grain doses of ipecacuanha

25th July — Goes out well

CASE 7 — *Gangrene of Left Big Toe* — YU YIN CHANG, aged 41, farmer, living 20 li from Tientsin

16th July 1887 — Admitted, with the left big toe in a state of gangrene It commenced three months ago with intense pain

The fingers of the right hand have suffered from the disease The first and second phalanges of the middle and index fingers are absent, but the stumps have healed There is no right radial pulse to be felt in the usual place, but at the back of the radius a small thready artery can be felt pulsating His left pulse is normal He is quite certain that the pulse was normal in the right arm two years ago, as Chinese doctors used frequently to examine it Five months ago, he says, the right pulse moved to the back of the bone, the native doctors upon examining told him this The fingers of the right hand were attacked with numbness and pain 15 months ago, and gradually became gangrenous The stumps healed three months ago There is atrophy of the muscles of the right arm as compared with the left

26th July — Left hospital

CASE 8 — *Dry Gangrene of Right Foot* — HUANG CHUNG-YI, aged 32, farmer, Chiao-ho-hsien, 300 li from Tientsin

2nd October 1887 — Admitted The fifth toe has fallen off The fourth is black and dry The skin covering the fifth metatarsal bone is also quite gangrenous The dorsum of the foot, over the entire metatarsus, is red and intensely painful He has no freedom from pain A line of demarcation has formed and a stinking fluid escapes

6th October — Performed CHOPART'S amputation of foot Very little blood in the foot Divided the tendo Achillis Dressed antiseptically

14th October — Diarrhoea has set in Morphia injection is required twice a day to relieve the pain A small slough has formed along the line of sutures

23rd November — Patient in much better health Still requires morphia to relieve the pain Three-fourths of the wound has healed by granulation, the remaining fourth is slowly healing, the granulating surface being healthy There is no appearance of disease about the foot now

28th November — Patient much stouter and in good health His brother has come to take him home before the river closes The outer corner of the incision has still to granulate

CASE 9 — *Gangrene of Middle Toe of Left Foot, dating from one Month ago* — WANG CHIH-HSING, aged 36, coolie, one of the famine refugees now in Tientsin

29th December 1887 —Amputation of the diseased toe

10th January 1888 —Healing by granulation

CASE 10 —Patient from Ch'ing-yun-hsien came to out-patient department with very advanced gangrene of both feet Aged about 30 Did not become an in-patient Similar history to the other cases

METEOROLOGICAL TABLE, January 1888 to March 1889

MONTH	WIND									BAROMETER		THERMO METER		RAIN- FALL	SNOW FALL	TIDES		
	Direction					Force												
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Gale	No of Days Fresh	No of Days Moderate	No of Days Light	Highest	Lowest	Highest	Lowest	No of Days	Quantity	No of Days	Highest	Lowest
1888										<i>Inches</i>	<i>Inches</i>	°	°		<i>In</i>		<i>Ft in</i>	<i>Ft in</i>
January	4	3	6	9	9	1		5	25	30 85	30 10	38	6				11 6	8 0
February	11	5	4	3	6	3	5	7	14	30 70	30 22	37	3			4	13 6	8 6
March	4	8	4	4	11	4	4	11	12	30 60	30 00	60	24				12 0	7 0
April	4	10	4	4	8	2	6	11	11	30 55	29 85	78	40	5	1 55		13 0	8 6
May	3	9	9	3	7	1	5	18	7	30 40	29 30	101	47				14 0	8 6
June	8	8	2	3	9	1	6	15	8	30 07	29 75	104	60	4	1 38		13 6	9 0
July	2	7	2	2	18		1	11	19	30 02	29 65	102	72	5	4 92		13 6	9 6
August	9	8	6	1	7	1	2	8	20	30 12	29 77	93	66	11	8 77		16 6	10 0
September	8	2	4	7	9		4	13	13	30 42	29 90	85	50	3	1 45		13 6	9 6
October	5	1	12	7	6	5	2	9	15	30 52	29 87	75	28				13 6	7 0
November	7	3	7	5	8	2	1	1	26	30 85	30 05	63	20				16 6	6 6
December	6	2	5	2	16	2	2	4	23	30 85	30 17	44	20			1	15 6	6 0
1889																		
January	2		2	14	13	3	5	3	20	30 80	30 15	32	5			2	12 0	8 0
February	4	1	3	10	10	2	5	21		30 80	30 07	46	8			2	12 6	7 6
March	7	6	3	10	5	2	8	8	13	30 65	29 87	65	14			2	14 0	7 0

# DR. J F WALES'S REPORT ON THE HEALTH OF CANTON

For the Year ended 31st March 1889

MR Harbour Master MAY has supplied the appended abstract from the meteorological tables of last year

## ABSTRACT OF CANTON CUSTOMS METEOROLOGICAL TABLES, April 1888 to March 1889

MONTH	WINDS							WEATHER			BAROMETER				THERMOMETER				
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	No of Days Fog	No of Days Rain	Rainfall in Inches	DAY		NIGHT		DAY		NIGHT		
											Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	
1888							miles				Inches	Inches	Inches	Inches	°	°	°	°	
April	6	9	1		14		7.21	19	12 00	{	30 120 29 940	29 710 29 880	30 090 29 930	29 700 29 890	89 00 77 43	62 00 70 97	87 00 75 13	62 00 70 20	
May	2	12	1		16		6.24	22	15 15	{	30 167 29 996	29 717 29 918	30 117 29 955	29 743 29 892	92 50 84.09	61 90 75 01	93 00 84.04	64 90 74.82	
June	2	10	4		14		6.55	22	14 85	{	29 988 29 832	29 500 29 772	29 990 29 850	29 590 29 801	91 00 87 23	63 50 77 21	91 50 85 13	70 00 77 33	
July		15	1		15		6.50	14	15 15	{	30 009 29 867	29 370 29 802	30 050 29 859	29 400 29 800	101 00 92 20	75 50 82 90	91 00 86 00	76 00 80 30	
August		2	5	2	22		5.60	14	8 85	{	30 089 29 882	29 597 29 814	30 047 29 867	29 597 29 810	97 30 90 90	76 00 80 80	92 00 84 90	74 90 78 70	
September	6	4	1		19		6.10	16	4 77	{	30 191 30 076	29 497 29 979	30 297 30 068	29 747 30 006	96 00 90 20	70 00 79 20	88 00 84.10	69 40 76 50	
October	12	5			14		5.20	9	4 13	{	30 454 30 223	29 910 30 130	30 410 30 191	29 946 30 142	89 00 83 50	60 00 71 70	81 90 75 90	56 00 68 30	
November	12	1		2	15		5.40	4	1 07	{	30 418 30 277	29 896 30 182	30 424 30 225	29 928 30 176	87 00 80 00	58 00 66 90	82 90 71 50	53 00 63 50	
December	16	3		1	11		5.70	12	2 37	{	30 530 30 313	30 000 30 203	30 458 30 255	30 024 30 217	82 50 72 20	51 00 59 60	77 00 64.50	46 00 57 10	
1889																			
January	18	3		2	8		6.80	9	0 67	{	30 490 30 348	29 976 30 248	30 440 30 312	30 040 30 265	76 50 60 20	39 00 50 10	70 50 55 40	37 00 49 30	
February	9	8		1	10		6.70	10	0 98	{	30 600 30 311	29 975 30 223	30 530 30 278	29 930 30 204	79 00 64.80	39 00 52 50	76 00 58 40	34.80 51 00	
March	5	10			16		6.20	2	19	3 37	{	30 536 30 234	29 920 30 146	30 520 30 216	29 940 30 162	82 50 68 90	49 00 60 80	75 00 65 80	47 50 60 00

REMARKS.—1888 During April the highest reading of the barometer was 30.120, on the 1st, and the lowest 29.700, on the 8th. The highest temperature was 89°, on the 28th, and the lowest 62°, on the 2nd. Rain fell on 19 days, measuring 12 inches. S E winds prevailed, and the strongest was recorded on the 16th, averaging 14.6 miles an hour during 24 hours. During May the highest reading of the barometer was 30.167, on the 11th, and the lowest 29.717, on the 20th. The highest temperature was 93°, on the 10th, and the lowest 61° 9, on the 24th. Rain fell on 22 days, measuring 15.15 inches. S E winds prevailed, and the strongest was recorded on the 21st, averaging 11.1 miles an hour during 24 hours. During June the highest reading of the barometer was 29.990, on the 4th, and the lowest 29.500, on the 17th.

The highest temperature was  $91^{\circ} 5$ , on the 23rd, and the lowest  $63^{\circ} 5$ , on the 4th. Rain fell on 22 days, measuring 14.85 inches. S E winds prevailed, and the strongest was recorded on the 17th, averaging 4.6 miles an hour during 24 hours. During July the highest reading of the barometer was 30.05, on the 6th, and the lowest 29.37, on the 15th. The highest temperature was  $101^{\circ}$ , on the 14th, and the lowest  $75^{\circ} 5$ , on the 16th. Rain fell on 14 days, measuring 15.15 inches. S E winds prevailed, and the strongest was recorded on the 15th, averaging 16.8 miles an hour during 24 hours. During August the highest reading of the barometer was 30.089, on the 21st, and the lowest 29.597, on the 16th and 17th. The highest temperature was  $97^{\circ} 3$ , on the 6th, and the lowest  $74^{\circ} 9$ , on the 12th. Rain fell on 14 days, measuring 8.85 inches. S W winds prevailed, and the strongest was recorded on the 13th, averaging 9.7 miles an hour during 24 hours. During September the highest reading of the barometer was 30.297, on the 10th, and the lowest 29.497, on the 9th. The highest temperature was  $96^{\circ}$ , on the 20th, and the lowest  $69^{\circ} 4$ , on the 30th. Rain fell on 16 days, measuring 4.77 inches. N E winds prevailed, and the strongest was recorded on the 20th, averaging 25.8 miles an hour during 24 hours. During October the highest reading of the barometer was 30.454, on the 23rd, and the lowest 29.910, on the 18th. The highest temperature was  $89^{\circ}$ , on the 18th, and the lowest  $56^{\circ}$ , on the 22nd and 26th. Rain fell on 9 days, measuring 4.13 inches. N E winds prevailed, and the strongest was recorded on the 1st, averaging 10.7 miles an hour during 24 hours. During November the highest reading of the barometer was 30.424, on the 30th, and the lowest 29.896, on the 19th. The highest temperature was  $87^{\circ}$ , on the 1st and 17th, and the lowest  $53^{\circ}$ , on the 23rd. Rain fell on 4 days, measuring 1.07 inch. N E winds prevailed, and the strongest was recorded on the 30th, averaging 14.5 miles an hour during 24 hours. During December the highest reading of the barometer was 30.530, on the 1st, and the lowest 30. on the 30th and 31st. The highest temperature was  $82^{\circ} 5$ , on the 5th, and the lowest  $46^{\circ}$  on the 22nd. Rain fell on 12 days, measuring 2.37 inches. N E winds prevailed, and the strongest was recorded on the 19th, averaging 11.1 miles an hour during 24 hours. 1889. During January the highest reading of the barometer was 30.490, on the 7th and 8th, and the lowest 29.976, on the 12th. The highest temperature was  $76^{\circ} 5$ , on the 1st, and the lowest  $37^{\circ}$  on the 22nd. Rain fell on 9 days, measuring 0.67 inch. N E winds prevailed, and the strongest was recorded on the 7th, averaging 13.1 miles an hour during 24 hours. During February the highest reading of the barometer was 30.600 on the 10th, and the lowest 29.930, on the 25th. The highest temperature was  $79^{\circ}$ , on the 17th, and the lowest  $34^{\circ} 8$ , on the 6th. Rain fell on 10 days, measuring 0.98 inch. N E winds prevailed, and the strongest was recorded on the 26th, averaging 15.3 miles an hour during 24 hours. Ice in small quantities was observed on two days, the 6th and 7th. During March the highest reading of the barometer was 30.536, on the 13th, and the lowest 29.920, on the 31st. The highest temperature was  $82^{\circ} 5$ , on the 11th, and the lowest  $47^{\circ} 5$ , on the 13th. Rain fell on 19 days, measuring 3.37 inches. S E winds prevailed, and the strongest was recorded on the 12th, averaging 15.6 miles an hour during 24 hours.

The general health of the residents on Shamien during the above period has been excellent. There were five deaths among foreigners. These were all members of the Customs out-door staff residing on Honam.

The diseases terminating fatally were —

Suppurative inflammation of the liver	2
Malarial dysentery	1
Cholera	2

The first three cases died in the Hongkong Civil Hospital.

Malarial fevers and mucous diseases, *eg*, diarrhoea, dysentery and catarrhal affections of the air-passages, are the prevalent forms of sickness here. The former are somewhat more frequent in the spring and the latter in the autumn. There is also much general disease, especially syphilis. Cases of this complaint do exceedingly well as a rule. This is no doubt due to the prolonged summer, for during the eight months of hot weather, when the skin is bathed more or less in perspiration, specific treatment can be uninterruptedly pursued. On the other hand, cases of gonorrhoea are very difficult to cure. Injections have to be prescribed most cautiously owing to their increased tendency here to excite inflammation of the bladder and testicles, and notwithstanding all means used, the disease frequently lingers till the advent of the cool months.

Dr KERR, the Principal of the American Mission Hospital, informs me that cholera was epidemic during the summer in and around Canton. It was not in a malignant form, although in some places numerous deaths occurred. Dysentery and malarial fevers were endemic in autumn, and caused much mortality. He regarded the past summer as having been a peculiarly unhealthy one, and consequently he avoided operating in his hospital as much as possible.



## DR. R H COX'S REPORT ON THE HEALTH OF WUHU

For the Eleven Months ended 31st March 1889

THE general health of the foreign community of this port (now consisting of 42 persons) has been fairly good for the period under review. This favourable result has been due in part to the lowness of the river during the summer and, to a great extent, to the improved dwellings of many of the residents.

The absence of an overflow from the river on the plain and low grounds in the immediate vicinity of Wuhu accounts for the few cases of malaria which have come under notice, at the same time the ground available for out-door exercise was for the same reason not diminished.

The better dwelling-houses of many of the residents have contributed, to a great extent, to the general health, and though many still remain unprovided with other than native houses, yet the appearance of this port during the past few years has undergone a decided improvement, and residence here has been rendered tolerably comfortable.

There has been a general tendency to constipation during the first hot months—June, July and August—and towards diarrhoea during the remainder of the year, but both only to a minor degree.

Influenza was prevalent in January and February, and few escaped at least one attack.

Two cases of parotitis occurred on board a gun-boat when stationed here, but the disease did not extend to the shore.

There were two cases of whooping-cough. The infection had taken place in Shanghai. One of the little patients while convalescent developed an attack of laryngismus stridulus, but repeated doses of ipecacuanha, and hot mustard baths gave speedy relief.

A case of serous apoplexy occurred —

A sexagenarian of good physique and temperate habits, while stepping on a loose stone, sprained his right ankle, the foot turning inwards. This happened about 100 yards from his destination, and for that distance he had to crawl on hands and knees, the native bystanders refusing assistance. On examination a few minutes afterwards the right ankle was found slightly swollen, with great pain below and in front of the external malleolus and on the least movement of the joint. The patient's manner was much excited. He was at once placed in bed, with the affected leg elevated, an evaporating lotion applied and a mercurial purgative given. On the 2nd day the patient was still excited, with flushed face and full, bounding pulse. Had slept little during the night, ankle and foot still swollen, with abnormal tenderness. Bowels had moved twice. Saline purgative was given, and at bedtime 30 grains of bromide of potassium. 3rd day—Had slept four hours. Bowels acted freely. Still very restless, with occasional delirium. Hyperæsthesia replaced by anæsthesia in affected leg, though movement unimpaired. Applied large blister to the back of the neck and ordered 30 grains of bromide of potassium three times a day. At 4 P.M. had convulsive movements in both arms. Expressed a wish to see a friend, but on the latter's arrival was unable to speak, though conscious. Hot mustard stupes were at once applied to limbs and abdomen,

when the attack passed off, the aphasia lasting half an hour. A minim of croton oil was given in butter, after which a considerable quantity of blood came away in the stool, he being subject to such hæmorrhages periodically. From this time he progressed favourably, the bromide being continued (90 grains in 24 hours), and was able to resume his occupation in a fortnight.

Four months later he came under treatment, having strained the knee of the same leg in a similar manner. The joint was markedly swollen on the inside and very tender at the insertion of the sartorius. Rest and cooling lotions with thorough purgation resulted in recovery without further complication.

The following case illustrates a form of injury common among the lower classes in Europe and Asia alike —

A B received a thrust in both eyes from the extended fingers of an exasperated coolie. On examination an hour afterwards the conjunctivæ were found much congested, tension increased in both eyeballs, with intense photophobia and profuse lachrymation. Neither cornea was injured. The patient was placed in a darkened room and the temples blistered, while an iced solution of boracic acid was applied constantly to the eyes, and occasionally atropine and nitrate of silver solutions. In six days he resumed duty, but after a few days a relapse occurred which assumed the form of syphilitic keratitis. This was treated locally by yellow oxide of mercury ointment and constitutionally by mercurial inunction.

A slight case of sunstroke was met with as the result of violent exertion when exposed to the sun's rays in summer. The continued application of iced water to the head by means of LEITER'S coil—the bowels being freely moved—restored the patient to his usual health in a few days.

A nearly fatal case of dysentery when far advanced came under treatment, in which recovery was mainly due to the untiring attention and careful nursing of the husband, which enabled the patient to gain strength enough to reach a more bracing climate.

Among the Chinese there has been no epidemic during this period.

Leprous beggars may be seen every day in the streets of the native town with gangrenous limbs exposed as an appeal for alms.

Tinea favosa is the most striking and general disease. From 20 to 30 per cent of the children of the poorer classes are afflicted with this skin disease, and a large proportion of the adult coolie class are rendered prematurely bald from the same cause. The Chinese know no cure for this disease when far advanced, but in the early stage they keep the head shaved at the seat of disease, which prevents its extension, and by the cleanliness entailed by this procedure cure sometimes results. Treatment by depilation is unknown.

In midwifery the following difficult case was encountered —

A native woman, aged 26, who had been three days in labour, was found in a very exhausted state, with feeble pulse, clammy skin and dry brown tongue. The left arm and funis of the child were protruding, the arm partly decomposed and showing from its mangled state the violence used by the ignorant native midwives to effect delivery. After brandy and chicken soup had strengthened the patient, chloroform was administered by an assistant. When anaesthesia was complete, an attempt to introduce the hand into the uterus, with the intention of turning, was made, but the undilated condition of the soft parts—the patient being a primipara—and the diminished space caused by the child's arm in the vagina rendered the accomplishment of this a work of extreme difficulty. A leg was then searched for, and when found could not be firmly held, owing to exhaustion from prolonged effort and the cramped condition of the fingers from uterine pressure. After a short rest a second attempt to turn was made. The right foot of the child was grasped within the uterus and traction applied, while the impacted shoulder was pressed upwards by means of the presenting arm, and version was at length accomplished.

The rest of the delivery was easy, the flexed left leg dilating the parts for the after-coming head The placenta was then removed by the hand in the uterus and ergotine injected subcutaneously The uterus was washed out with a solution of permanganate of potash, 1 drachm to the quart, and this solution used for the three succeeding days The patient made a perfect recovery

I am indebted to Mr Harboun Master E MOLLOY for the accompanying meteorological table for the last 12 months

ABSTRACT of WUHU CUSTOMS METEOROLOGICAL TABLES, April 1888 to March 1889

MONTH	THERMOMETER.			BAROMETER			RAINFALL
	Max.	Min	Average	Max.	Min	Average	
1888	°	°	°	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
April	76	41	57.67	30.43	29.67	30.05	9.61
May	88	53	66.99	30.18	29.66	29.96	1.65
June	90	62	75.70	30.00	29.68	29.87	0.74
July	100	66	82.14	29.99	29.66	29.84	0.97
August	101	74	84.16	30.04	29.56	29.86	1.53
September	94	61	72.73	30.34	29.92	30.16	1.66
October	83	43	68.97	30.30	29.91	29.98	2.00
November	75	33	52.41	30.68	29.92	30.28	1.99
December	63	28	44.58	30.68	30.06	30.32	0.46
1889							
January	49	18	31.62	30.60	30.08	30.42	2.80
February	60	26	37.91	30.58	29.88	31.40	2.79
March	74	31	48.53	30.58	29.82	31.10	4.31

# DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 31st March 1889

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei,  
for the Six Months ended 31st March 1889 Latitude,  $31^{\circ} 12' 30''$  N, Longitude E of Greenwich,  
 $8^h 5^m 45^s$  \*

DATE	Barometer at 32° F	THERMOMETER.		Amount of Vapour in the Air per Cubic Foot	Diurnal Mean Hu- midity, 0-100	Diurnal Mean Ozone, 0-21	Velocity of Wind per Hour	Mean Direction of Wind	Total Evaporation during Month	Total Rainfall during Month	REMARKS
		Diurnal Mean Tempera- ture in Shade	Extreme Tempera- ture in Shade								
1888	<i>Inch</i>	<i>° F</i>	<i>° F</i>	<i>Grains</i>			<i>Miles</i>		<i>Inch</i>	<i>Inch</i>	
Oct	Max	30 511	72 8 (14)	7 793 (18)	86 6 (25)	14 0	30 7 (22)	N 67° 2 E	3 416	3 785	3 rainy days
	Mean	30 123	63 9	4 028	74 5	8 4	10 9				
	Min	29 735	46 9 (22)	1 617 (27)	47 5 (21)	5 5	1 4 (24)				
	Range	0 776	25 9	49 5							
Nov	Max	30 662	69 7 (1)	6 247 (5)	88 6 (28)	12 0	32 7 (9)	N 21° 6 W	2 020	2 515	2 rainy days
	Mean	30 228	53 8	3 919	79 1	9 3	13 1				
	Min	29 784	42 0 (22)	1 393 (25)	67 9 (30)	6 0	0 0 (14)				
	Range	0 878	27 7	40 0							
Dec	Max	30 659	55 9 (9)	4 875 (9)	86 7 (5)	13 7	47 7 (30)	N 4° 3 W	1 725	0 949	5 rainy days
	Mean	30 257	46 5	3 369	80 7	8 7	9 7				
	Min	29 962	38 9 (1)	1 788 (31)	73 8 (23)	5 2	1 4 (16)				
	Range	0 697	17 0	31 5							
1889											
Jan	Max	30 678	42 3 (12)	2 875 (1)	95 8 (7)	15 7	38 5 (4)	N 15° 2 W	1 071	1 693	Absolute calm was noted on five occasions, 17 rainy days. Hoar frost on the 4th, snow on the 7th
	Mean	30 364	34 2	2 025	82 7	11 9	12 9				
	Min	29 983	23 0 (5)	0 892 (5)	71 5 (31)	6 5	0 0 (30, &c)				
	Range	0 695	19 3	32 3							
Feb	Max	30 571	48 1 (10)	3 741 (21)	92 4 (25)	17 5	34 2 (22)	N 12° 6 W	1 723	2 265	10 rainy days, storm on the 23rd
	Mean	30 280	38 1	2 557	78 9	11 6	12 6				
	Min	29 709	29 5 (22)	1 281 (27)	61 2 (18)	7 0	1 2 (11)				
	Range	0 862	18 6	37 6							
March	Max	30 625	63 2 (8)	5 893 (8)	97 4 (11)	17 7	36 7 (25)	S 20° 2 E	3 198	2 826	12 rainy days, storms on the 9th and 11th
	Mean	30 155	48 1	3 672	77 4	11 9	13 7				
	Min	29 729	37 8 (12)	1 427 (26)	60 7 (30)	6 2	0 0 (14)				
	Range	0 896	25 4	42 7							

\* Position of British Consulate General, Shanghai —Latitude,  $31^{\circ} 14' 41''$  N, longitude,  $121^{\circ} 28' 55''$  E of Greenwich

NOTE —The figures in parentheses indicate the days on which the observations to which they are appended were made, under the headings "Diurnal Mean Temperature in Shade" and "Diurnal Mean Humidity" they indicate the days on which the *mean readings* were respectively highest and lowest. The monthly barometric means are deduced from four daily observations recorded in the local newspapers. The monthly thermometric means are deduced from the daily maximum and minimum, half the sum of which is taken as the mean for each day. The amount of watery vapour in the air is not observed directly. It has been assumed as an approximation that the amount is a maximum or minimum for a given period when the ratio of the tension of the ambient air to that of dry air reaches its maximum or minimum. The mean humidity is deduced from two daily observations made respectively at 4 A.M. and 4 P.M., the mean of the daily means being taken as the monthly mean. The mean direction of the wind is deduced from two daily observations made at 4 A.M. and 4 P.M. respectively.

For the above abstract I am indebted to the Rev Père CHEVALIER, S.J., Director of the Zikawei Observatory

The early winter months were remarkably mild, frost having hardly appeared before January. The last three months were cold and rainy. Snow fell but once, on the 7th January. At Zikawei the lowest temperature registered was 19° 9 F on the 5th January, and the highest 85° 5 on the 14th October. In the settlements the lowest temperature was 19° F on the 5th January, and the highest 86° on the 14th October.

The minimum and maximum temperatures respectively for October were 40° on the 22nd, and 86° on the 14th, for November, 41° on the 25th, and 74° on the 1st, for December, 33° on the 1st, and 64° on the 8th, for January, 19° on the 5th, and 52° on the 11th, for February 26° on the 6th and 11th, and 60° on the 16th, for March, 33° on the 1st and 13th, and 72° on the 8th.

The diseases chiefly encountered among foreigners were dysentery and diarrhoea, hepatitis, enteric fever, intermittent fever (of which there was a very large number of cases in October), rheumatism and neuralgia, and catarrhal affections of all kinds. Measles and varicella prevailed among children from December to the end of March, and parotitis was I think more common than usual. Several cases of pleurisy were noted, but none of great gravity so far as I know. Skin affections were remarkably prevalent. Towards the end of February two or three cases of scarlet fever were reported.

The mortality from disease among resident Europeans was exceptionally low. There was no death from small-pox, scarlet fever or cholera, to each of which there had been victims during the previous cool season.

#### BURIAL RETURN of FOREIGNERS for the Half-year ended 31st March 1889\*

CAUSE OF DEATH	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	TOTAL
<i>Enteric fever</i>	2†		1†			1†	4
"Shanghai fever"			1‡				1
<i>Intermittent fever</i>				1†	f 1		2
<i>Dysentery</i>		1†	f 1‡	1‡			3
<i>Chronic diarrhoea</i>	2						2
<i>Hepatic abscess</i>	1†						1
Bright's disease		1†	1‡	1	1 1†	1†	1
Phthisis		f 1† 2‡					8
General tuberculosis		f 1‡					1
Marasmus				1‡			1
Alcoholism	1			1‡			1
"Acute mania"							1
Convulsions					1		1
Dentition		1					1
Cerebral meningitis			1†				1
Cerebro spinal meningitis					1‡		1
Locomotor ataxy	1		1 1†				1
"Dilatation of heart"							2
"Heart disease"				f 1‡			1
Catarrhal pneumonia				f 1‡			1
Acute bronchitis						f 1‡	1
Enteritis			1				1
Biliary obstruction	f 1‡				f 1‡		1
Sclerema						1‡	1
Cancer, thoracic				1†			1
" " abdominal							1
"Fever"	f 1†					f 1‡	1
Poisoning, accidental					1		1
Fracture of skull	1			1†		1†	2
Drowned			1				2
Suicide							
TOTAL	10	7	9	9	7	6	48

\* Not including deaths (if any) among the Catholic religious bodies and the Japanese, exclusive also of premature and still births.

† Non resident

‡ Asiatic or Eurasian

|| Infant

f Female.

The Causes of Death usually attributed to the climate are printed in italics

Analysing this table, we find that out of the total of 48 deaths recorded 1 was due to accidental poisoning, 1 to fracture of the skull, 2 to drowning and 2 to suicide. Excluding these, as well as 1 case of "fever" in which death occurred at sea on a voyage to Shanghai and the body was buried here, there remain 41 deaths attributable to disease (32 males and 9 females). There were 8 deaths among children, distributed as follows—3 of European birth (2 males and 1 female), children of residents, and 5 non-Europeans (1 male and 4 females). The age of the oldest child was  $4\frac{1}{2}$  years (catarrhal pneumonia), that of the youngest was 10 days (sclerema). The foreign adult mortality from disease was therefore 33 (29 males and 4 females), or, excluding 11 adults of Asiatic birth, the European adult mortality was 22 (21 males and 1 female). Of these, 14 (13 males and 1 female) were non-residents. The mortality among resident European adults was therefore 8 (all males).

#### I—CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS

Chronic diarrhoea	2	Alcoholism	1	"Dilatation of heart"	1
Phthisis	2	Locomotor ataxy	1	Enteritis	1

8 males, against 19 males and 3 females for the last previous corresponding period

#### II—CAUSES of DEATH from DISEASE among the CHILDREN of RESIDENT EUROPEANS

Intermittent fever	1 (female)	Convulsions	1	Dentition	1
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2 males and 1 female, the numbers for the winter six months of 1887-88 having been 5 males and 3 females

#### III—CAUSES of DEATH from DISEASE among NON-RESIDENT EUROPEAN ADULTS

Enteric fever	4	Hepatic abscess	1	Cerebral meningitis	1
Intermittent fever	1	Bright's disease	1	"Dilatation of heart"	1
Dysentery	1	Phthisis	3 (1 female)	Abdominal cancer	1

13 males and 1 female, against 13 males during the corresponding period of 1887-88

#### IV—DEATHS from DISEASE among CHILDREN of NON-RESIDENT EUROPEANS

None

#### V—CAUSES of DEATH from DISEASE among NON-EUROPEAN ADULT FOREIGNERS

"Shanghai fever"	1	"Acute mania"	1
Dysentery	2 (1 non-resident female)	Cerebro spinal meningitis	1
Phthisis	3	"Heart disease"	1 (female)
General tuberculosis	1 (female)	Thoracic cancer	1

8 males and 3 females, against 5 males and 3 females in the last corresponding period

#### VI—CAUSES of DEATH from DISEASE among NON-EUROPEAN FOREIGN CHILDREN

Marasmus	1	Biliary obstruction	1 (female)
Catarrhal pneumonia	1 (female)	Sclerema	1 ( " )
Acute bronchitis	. . 1 ( " )		

1 male and 4 females, as against 1 male and 1 female during the previous corresponding period

During 1888 no sanitary work on a large scale was undertaken by either municipality. The usual routine of street and drain cleansing was pursued, very efficiently as regards the main thoroughfares, though with all the stupid and objectionable features which have frequently been pointed out in these Reports. As regards the side streets and alleys, nothing could well be less efficient, many of these being at any hour of the day all through the heat of summer as filthy as the worst quarters within the native city. No attempt has yet been made to limit overcrowding, though sooner or later a heavy penalty will have to be paid for our neglect in this particular. We come near, though happily we do not actually reach, the philosophical frame of mind of the Manila Government in face of the official statistics of cholera mortality during the year ended 31st July 1889. More than 60,000 deaths from cholera in the Philippine Islands were returned for this period, and this is how, according to the *Revue Scientifique*,\* the Government through the *Siglo Medico* comments on the figures —

The people having now become familiar with the constant presence of this scourge, which has lost its contagious and epidemic character, calmly mind their business, paying no attention to the cholera, which after all is only one out of the numerous diseases of the country, and is not so fatal as malaria and its various manifestations.

The medical advisers, if there are any, of the Manila Government must hold original and remarkable, but fortunately singular, views about contagion.

During 1888 there were but few contributions to the literature of cholera. Drs MACLEOD and MILLES† state that they found KOCH'S comma bacillus in 40 out of 44 cases of cholera in Shanghai (mostly Chinese patients) investigated by them, and they conclude from this fact and from minutely detailed laboratory experiments on guinea-pigs that the comma bacillus is the cause of the disease.

Four deaths occurred from enteric fever during the winter six months, all among non-residents, and all at the General Hospital.

CASE I. Man-of-war's man, aged 21 — *Symptoms previous to admission* — Shivering, headache, foul tongue, frontal headache, constipation. Temperature reported did not exceed 100° 8.

*Condition on admission* (4th day) — Headache, white tongue, complains of passing restless nights, but sleeps during the day. Had a dark, healthy motion shortly after admission. No cough, sibilant rales all over chest. Respiration 18, can fill chest completely with deep inspiration without inducing any pain. No abdominal distension or tenderness. No gurgling. Complete loss of appetite. Temperature (7 P.M.) 104°. Pulse 72, compressible.

*Course of Disease* (5th day) — Depression, intense occipital headache, characteristic tongue, characteristic stools (two). Afternoon temperature 104°, falling to 103° at night.

7th day — Delirious. Tongue dry. No appreciable liver or spleen enlargement. Profuse perspiration. Faint systolic murmur in cardiac region, not localised.

8th day — Restless, trying to get out of bed. Tongue baked. Stools partly solid.

9th day — Extreme depression, indifference. Taking milk and broths freely.

10th day — Tongue moist, violently delirious. Sinks towards foot of bed.

11th day — Asking for food, tongue moist, no delirium. A few doubtful spots round umbilicus. Stools hard. The first sound of the heart is markedly muffled, chiefly at apex.

\* 1889, II, 733

† *Lancet*, 1889, I, 416, 468

Up to this time the maximum daily temperature ( $103^{\circ} 2$  to  $104^{\circ} 2$ ) was reached about 5 P M, from  $0^{\circ} 5$  to  $2^{\circ}$  fall occurring between that hour and 10 P M. The early morning temperature varied between  $102^{\circ}$  and  $103^{\circ} 2$ .

12th day—Temperature range  $101^{\circ} 8$  (7 A M) to  $103^{\circ}$  (10 P M). General condition deteriorated. Tongue baked and brown. Slight iliac gurgling. No abdominal tenderness.

14th day—Temperature at 7 A M,  $102^{\circ} 6$ , at noon,  $102^{\circ}$ , at 5 and 10 P M,  $102^{\circ} 4$ . Pulse 90 in the morning, rose to 132 (dicrotic) at night. Tongue covered with thick crusts. Sleeping fairly from time to time, with occasional intervals of muttering delirium.

15th and 16th days—Deaf, extreme prostration, involuntary passages. Maximum temperature (at night)  $103^{\circ} 6$ .

17th day—Erythematous patch over sacrum. Cannot protrude tongue. Lies with mouth open. Respiration superficial, irregular, abdominal.

20th day—Constipation. Abdomen swollen, not tympanitic. Sleeps on side, but with eyes half open. Paroxysmal trembling of whole body.

21st day—In evening, somewhat suddenly, the entire surface became cold. The forearms were strongly flexed on the arms, resisting attempts at extension. Fingers flexed, but not so forcibly.

22nd day—Temperature nearly constant all day ( $101^{\circ}$  to  $101^{\circ} 6$ ). Arms free. Began to rally about 4 A M, and seemed to improve until evening, when limbs again became icy cold, though the trunk was warm. Unconscious at night.

23rd day—Subsultus. Remained unconscious, but surface gradually became warmer.

24th day—Patient took nourishment when poured into his mouth until 4 30 A M, then jerking movements of the wrists began and continued for a couple of hours. Death occurred at 9 A M.

*Postmortem Examination*,  $7\frac{1}{2}$  hours after death—Average temperature of air since death  $70^{\circ}$ . Body wasted, skin parchment colour. No ecchymoses except on back. Rigor mortis well marked. No sign of commencing putrefaction. There was no discharge from any of the natural outlets.

The diaphragm was slightly arched into the thorax. There were no pleural adhesions, and the lungs were healthy. There was no fluid in the pericardium or any appearance of pericarditis. The right ventricle was distended with fluid blood, the cardiac muscle was dead-leaf colour, the valves were normal.

On opening the abdomen the transverse colon was enormously distended with gas, its inferior border reaching to within 4 inches of the pubes. There was no general peritonitis. The liver was slightly enlarged and dipped with blood on section, it weighed 65 ounces. The gall bladder was tightly distended with olive green fluid. The spleen was enlarged and very friable, presenting two large yellow, broken-down pulpy infarcts at the upper end of its posterior border. Kidneys overfilled with blood, otherwise normal. The bladder contained a few ounces of very slightly albuminous urine.

The ileum was injected on its peritoneal surface. The last 6 inches of its mucous membrane was soft and œdematous, ecchymosed in large patches. There was no ulceration or infiltration of PEYER's groups, but the upper surface of the ileo-cæcal valve and the mucous membrane adjoining it were gangrenous and black. There was no perforation. There were no adhesions round the cæcum. This portion of the bowel was not completely invested with peritoneum. The mucous membrane of the cæcum was deeply injected, and the cæcal surface of the valve was, like the ileac surface, gangrenous. The serous surface of the ascending colon was injected. The bowel contained a considerable quantity of apparently normal feces. The mucous membrane as far as 2 or 3 inches beyond the hepatic flexure showed extensive patches of ecchymosis.

CASE II. Officer of a steamer, aged 44.—*Symptoms previous to admission*—"Ill for two weeks. Fever of irregular type. Has taken several full doses of quinine without apparent benefit. Antifebrin "in 5-grain doses always lowers his temperature quickly when it rises. The highest temperature observed "was  $104^{\circ}$ ."



*Condition on admission*—States that he had ague in Russia 10 years ago, and since then has had short attacks on and off "Never intemperate" Having lived exclusively on milk for a fortnight he is extremely constipated Tongue moist, covered with brown fur, red at edges and tip Breath horribly offensive No appetite Urine red, and often muddy, does not froth on being passed Has a short, irritating cough Sleeps fitfully but faintly Has had no rigor and no sweating

Has never had any pain in the right side or shoulder Has never spat blood His father died at 68 of "internal cancer"

Continuous with the liver dulness is an area of dulness occupying the greater part of the region corresponding to the transverse colon This area is tender to percussion Everywhere else the abdomen is resonant and painless There is no yellowness of the skin or conjunctivæ There are no spots

Temperature on admission (4 P M)  $104^{\circ} 6$ , at night  $103^{\circ} 2$  Pulse 100, soft

*Course of Disease*—Next day (16th ?), after an enema of castor oil, there was a very copious liquid motion which looked like pure bile The temperatures taken at 7 A M, noon, 4 P M and 10 P M were respectively  $101^{\circ}$ ,  $100^{\circ} 8$ ,  $103^{\circ}$ ,  $102^{\circ} 6$  The pulse did not rise above 80

17th day (?)—The temperatures taken at the same hours were  $102^{\circ}$ ,  $104^{\circ} 2$ ,  $103^{\circ} 8$ ,  $104^{\circ} 2$  The pulse did not rise above 78 The tongue was brown and dry Skin distinctly yellow In the morning a solid stool and in the evening one of typhoidal character were passed Much less flatulence, so that the liver can be mapped out Hepatic dulness begins  $1\frac{1}{2}$  inch below the horizontal nipple line and ends  $5\frac{1}{2}$  inches below it in a line 2 inches to the inner side of a vertical through the right nipple In this line,  $1\frac{1}{2}$  inch above the lower limit of dulness, is an exquisitely tender spot In the vertical through the right nipple the liver dulness extends from  $2\frac{1}{4}$  inches below the horizontal through the nipples to 5 inches below the same line There is relative dulness for  $\frac{1}{2}$  inch below the tip of the xiphoid appendix It is not possible to ascertain how far the liver extends into the epigastrium and left hypochondrium The gland cannot be palpated or in any way felt Six leeches were applied to the sensitive spot, with considerable relief

18th day—The temperatures, taken as before, were  $102^{\circ} 2$ ,  $104^{\circ} 2$ ,  $104^{\circ} 5$ ,  $102^{\circ} 8$  The pulse rose to 96, and was unsteady

19th day—Temperatures  $102^{\circ} 3$ ,  $102^{\circ} 8$ ,  $103^{\circ} 6$ ,  $102^{\circ} 8$  Pulse varied from 84 to 108 There is now no tenderness, but patient complains of severe pain of neuralgic character shooting along the fifth rib on the left side A normal stool was passed in the morning, but in the afternoon the passages became liquid, of a dirty-chest colour, and contained flakes of curd The tongue was normal

20th day—Prostration Temperatures  $104^{\circ} 2$ ,  $102^{\circ} 8$ ,  $103^{\circ} 2$  Was sleeping soundly at 10 P M when temperature should have been taken Two stools of brownish yellow fluid, very offensive, containing curd Complained of severe colicky pain in abdomen Only over region of gall bladder was there any tenderness on percussion The abdomen was tympanitic Tongue baked

21st day—At morning visit the temperature was  $98^{\circ} 2$ , and did not rise above this Extremely severe pain referred to abdomen, relieved by gentle, steady pressure, exasperated by percussion Face Hippocratic, breath cold Tongue scaly but moist Stools frequent, consisting of dirty reddish-brown liquid and yellow sediment Pulse became gradually more and more miserable, and at night could scarcely be counted Milk and broth with port wine were taken freely up to midnight

At 1 A M on the 22nd day he became collapsed, fell into a profuse sweat, and vomited about 4 ounces of loosely coagulated blood He died at 1 30 A M

*Postmortem Examination*, 9 hours after death—Average temperature of an since death  $68^{\circ}$  Surface of body cold, thorax and abdomen tympanitic Rigor mortis passing off, no odour of putrefaction The skin of the face was yellow, purple brown ecchymoses in supra clavicular regions, over back and dependent parts and over external genitals Blood was oozing from the nose and bloody foam from the mouth

The diaphragm was strongly arched into the chest There was a little bloody serum in the left pleura An extensive area of the pleura covering the diaphragm was inflamed, corresponding exactly to a

similar patch on the peritoneal surface. There were no pleuritic adhesions. The lungs were retracted, normal everywhere on section. The pericardium was normal, containing no fluid. Both sides of the heart were empty, valves healthy, no insufficiency, myocardium of average thickness, not softened. The coronary arteries were pervious. No lesion of great vessels. The blood was fluid everywhere throughout the body.

The peritoneal cavity was distended with gas free from faecal odour. On incision there was a profuse escape of turbid, yellow fluid. The diaphragm was arched into the chest, its peritoneal surface deeply injected, and patches of lymph here and there over it. Surface of stomach, of small intestines and of colon injected,—purple. The stomach was enormously distended with gas and fluid. The colon was also much distended. The great omentum was rolled up and tucked under the lower border of the transverse colon. The small intestines were distended, and glued together by flakes of recent and bands of organised lymph. Flakes of thick pus were scattered widely over their surface. The parietal peritoneum was injected, but there was no lymph deposit on its surface. The liver extended from the fourth interspace to the costal border in the nipple line. Its tissue was soft, but not abnormal to the naked eye. It weighed 74 ounces without having been drained but after the escape of a considerable amount of blood during its removal. The gall bladder was empty. The spleen was swollen and soft, covered with lymph in flakes, bathed in pus derived from a partially localised collection behind and internal to it. It weighed 12 ounces. The posterior peritoneal surface of the stomach was deeply injected, covered with flakes of lymph. It aided in enclosing a magma of broken down pus and lymph, serum and effused blood, which was retained by rather loose adhesions between the stomach, spleen and pancreas. The left extremity of the greater curvature was fringed with organised lymph in pieces from  $\frac{3}{4}$  inch to 1 inch long. There were large ecchymoses on both mucous surfaces. The stomach contained a blood-stained turbid fluid. There was no perforation and no ulcer. There was no noteworthy enlargement or hardening of the mesenteric glands. The lower 18 inches of the ileum presented a vast number of solitary ulcers with central slough not yet separated. These were strictly limited by the ileo caecal valve, in the neighbourhood of which they were most thickly set. There was no perforation (water test under high pressure). There was no ulceration or even infiltration of PEYER'S patches. The small intestine contained, besides an enormous quantity of gas, a little bloody tenacious fluid. The caecum was completely surrounded by peritoneum and had a distinct meso caecum. Its serous surface was much injected. The appendix vermiformis was normal. There was no evidence of any localised inflammation in the peri caecal region. The posterior caecal glands were not in any way enlarged or distended. The large intestine was injected on its serous surface. Its mucous membrane was smeared with blood-stained fluid, here having a green tinge, when washed it appeared normal. The kidneys were very slightly congested.

This case if properly diagnosed as enteric fever belonged to a class of the disease which will be discussed in another place.

CASE III Marine, aged 18—Sent to hospital without any history. He states that he has been ailing for seven days, but said nothing about it until the day before admission as he was training for a boat race. He believes he got cold, pulling. Nine days ago he was drunk and fell more than once into the water, after which he remained in wet clothes. No history of rigors. Copious watery stools (two or three daily), no appetite, urgent thirst. Sleepless.

*Condition on admission* (7th day)—At noon, 5 P.M. and 10 P.M. his temperature was respectively  $103^{\circ} 4$ ,  $104^{\circ}$ ,  $104^{\circ}$ . Pulse 102, full and soft. Respirations 42. Has a hacking cough with scanty, frothy expectoration. There is slight tympanites. No pain or gurgling or local tenderness. Tongue dry and brown with red edges and tip. The base of the right lung is dull, and over a patch a little larger than a dollar fine crepitation is audible.

*Course of Disease* (8th day)—No delirium, much disorderly muscular action. Sputa rusty. Temperatures, as before,  $103^{\circ} 5$  (7 A.M.),  $104^{\circ}$ ,  $104^{\circ} 2$ ,  $104^{\circ}$ . Respiration 33 to 42.

9th day—Delirious Tongue dry, lips parched There is no flush No spots Stools infrequent, large, solid, offensive

10th day—Flush on right cheek Drowsy Much epigastric pain Has expectorated some pure blood The pulse was between 88 and 96 all day, respiration 36, temperatures  $103^{\circ}$ ,  $104^{\circ}$ ,  $104^{\circ} 6$ ,  $104^{\circ}$

11th day—Right lung clearing at base, dulness on percussion, and tubular breathing over lower half of middle lobe The lower lobe of the left lung is now engaged In forenoon patient was extremely prostrate Suddenly a number of minute violet spots appeared on the chin and left temple, lasting about an hour, during which the prostration deepened They as suddenly disappeared, leaving him somewhat better The filtered urine gave a copious deposit of chlorides with solution of silver nitrate, a cloud with cold nitric acid disappeared on boiling

12th day—Temperatures taken in axilla, as muscular weakness prevented the mouth being long kept closed,  $102^{\circ}$ ,  $103^{\circ}$ ,  $104^{\circ} 8$ ,  $103^{\circ} 6$  Pulse varied between 92 and 102, respiration between 42 and 48 There is hardly any cough, but there was a menacing paroxysm of dyspnoea this forenoon No cardiac lesion could be detected In the evening asked to be allowed to smoke a cigarette

13th day—Smart intestinal hæmorrhage, bright scarlet after a hard stool Delirious, but sleeping much In the evening bilious, lumpy and stinking stools without blood after a castor oil enema The violet spots noticed two days ago reappeared to day for an hour, with the same increased depression as before They disappeared under pressure and on stretching the skin They were confined to the chin and the left cheek close to the ear

14th day—The evanescent violet spots again appeared for a couple of hours on the same skin areas Stools (four) frankly typhoidal When the tongue is protruded for inspection patient does not think of drawing it back again Temperatures  $102^{\circ} 6$ ,  $101^{\circ} 4$ ,  $102^{\circ}$ ,  $103^{\circ}$

15th day—Had two normal stools Expectoration scanty, but very thick and bloody (not rusty) Stupid Pulse full, vibrating, varying between 90 and 96 Respiration between 30 and 38, superficial Temperatures  $101^{\circ} 4$ ,  $102^{\circ}$ ,  $102^{\circ}$ ,  $102^{\circ} 5$  Taking nourishment freely At 7 15 P.M., rapidly one after the other, had three copious hæmorrhages from the bowel, the last unconsciously The first was immediately preceded by a couple of hard faecal lumps The total quantity lost was between 60 and 70 fluidounces, mostly black clots with some scarlet liquid blood When seen, 20 minutes later, the pulse was 96, full but very soft, face pale, surface warm, respiration 38

16th day—Delirious all night No further bleeding Passed a little albuminous urine Much subsultus Pulse 120, with occasional flicker, respirations 35, temperatures  $104^{\circ} 2$ ,  $103^{\circ}$ ,  $103^{\circ} 6$ ,  $101^{\circ}$  In afternoon asked for and smoked two cigarettes In the evening had passed 15 ounces of urine in eight hours It was deep in colour, clear, slightly acid, SG 1.021, rich in urates, no albumen

17th day—Temperature  $100^{\circ} 6$  (7 A.M.) Pulse uncountable, 1 more flicker, respiration 30 Very restless and anxious At 9 A.M. nails blue, face covered with beads of sweat, groaning from pain referred to the epigastrium, which was swollen and very sensitive Tongue baked Takes nourishment eagerly, clutching nervously at whatever is placed in his hands At noon he complained bitterly of cold, and died half an hour later, retaining consciousness up to 10 minutes before death, when he remarked in a clear voice "It's all over now"

*Postmortem Examination*, 21 hours after death—Average temperature of the air since death  $40^{\circ}$  F Temperature of dead-house  $42^{\circ}$  Temperature of surface of body  $50^{\circ}$  Body well developed, muscular Livid patches on neck, abdomen, thighs and ankles, and on back and dependent portions of the body Abdomen much distended, tympanitic Eyes closed Rigor mortis very strongly marked, no sign of commencing putrefaction No discharge from any of the natural openings There was a very thin deposit of fat in the areolar tissue The muscles were red, but exuded no blood on section The summit of the diaphragm corresponded to the fourth rib Lungs dark, congested, fallen away from the chest wall, no pleuritic adhesions The pericardium was normal, but contained 4 ounces of straw-coloured serum The heart was normal in appearance, the valves and endocardium healthy The right ventricle contained a large

decoloured solid clot, which passed from the ventricle through the tricuspid valve and annule into the vena cava. The left ventricle was empty. The left annule contained a white tenacious clot entangled in the mitral valve. The great vessels were healthy, containing less blood than usual. The blood throughout the body was black and perfectly liquid. The diaphragmatic pleura was deeply injected, especially on the right side. The right pleura contained about 6 ounces of bloody fluid, the left about 4 ounces of citrine-coloured serum. The lower lobe of the left lung was in a condition of red hepatisation. The lower lobe of the right lung was deeply congested throughout, and exuded a semi-purulent fluid on section at the base. There was a large hæmorrhagic infarct on the surface of the right lower lobe.

There was a large escape of odourless gas on opening the abdomen. The stomach and transverse colon were tightly distended with gas. The loops of small intestine were united by recent lymph which, diffused on its flakes, covered and matted together the entire mass. The peritoneal surface of the small intestine was everywhere deeply injected, that of the colon only slightly so. The diaphragm was strongly arched into the chest. The liver, in its normal position, was coal black on its surface. The parietal peritoneum was almost universally injected. The peritoneal cavity contained a large quantity of citrine-coloured fluid. The true pelvis was full of this fluid along with coagulated lymph, the cæcum was buried in a mass of loosely aggregated yellow false membranes. The omentum was injected, covered with lymph, and rolled in under the transverse colon. There had been no escape of fæces. The liver was very friable, but showed no special abnormality on section. It weighed 68 ounces. The gall bladder was not distended, the bile ducts were normal. The spleen was enlarged in all its dimensions, very soft, its pulp reduced to mere putrilage. It weighed  $13\frac{3}{4}$  ounces. The œsophagus was normal. The posterior mucous surface of the stomach was deeply injected, the vessels were full almost to bursting. The mesenteric glands were enlarged, some indurated, some softened, the larger and softer contained semi-purulent fluid. The duodenum was deeply injected on its mucous surface, it contained a dead lumbricoid worm, as also did the ileum. The jejunum was slightly congested for its upper 4 inches, below this it looked healthy. The ileum down to within 3 feet of the valve was healthy. The last 3 feet was studded with large deep ulcers, mostly solitary, three of which had perforated all the coats. The entire small intestine was full of yellow fluid fæces with a few lumps. The walls of the bowel were greatly thickened and softened. The ulceration was strictly limited by the ileo-cæcal valve, which was almost eaten through from its ileal aspect. There was not a drop of blood anywhere in the intestinal tract. The cæcum was slightly injected, the cæcal surface of the valve thickened and softened, but not ulcerated. The appendix was very vascular on its serous surface, buried in lymph, but otherwise normal. The posterior cæcal glands were remarkably large and hard, suppuration was beginning within many of them. The colon and rectum were healthy, and contained a few hard faecal lumps.

The left kidney weighed 6 ounces, it was easily decorticated, congested, bleeding freely on section, otherwise normal. The right kidney weighed  $4\frac{3}{4}$  ounces, normal to naked eye.

CASE IV. Sailor, aged 28—"Ill for a fortnight, laid up six days ago, chiefly on account of "constipation and severe headache. Was purged, but no change occurred as regards headache. Five days "ago night temperature was  $102^{\circ}2$ , and thence out night temperature varied between  $102^{\circ}8$  and  $104^{\circ}$ . "The morning temperatures have oscillated round  $101^{\circ}$ . The pulse has never been over 90. Patient had "no appetite, was fed on milk and broth." Patient states that his illness began with shivering fits. He is now five days without a stool. Has very severe frontal headache, and some intolerance of light. He is sleepless, has never been delirious. He has no cough.

*Condition on admission* (14th day)—Tongue red and rather dry. Skin yellowish. Liver normal as to size. Spleen reaches to 1 inch below the costal border. Some tympanites, a few very doubtful spots. No gurgling or tenderness in the right iliac fossa. Temperature (4 P.M.)  $103^{\circ}$ . Nothing to be noted as regards heart or lungs.

*Course of Disease* (15th day)—After a castor oil enema, which induced several large semi-solid horribly fetid stools, there was considerable relief from headache. The stools then became characteristically

typhoid, and a number of unmistakable spots were observed Face flushed, much depression, dozing with eyes half open The pulse was 96 all day Temperatures at 7 A.M, noon, 4 P.M and 10 P.M were respectively  $101^{\circ}8$ ,  $103^{\circ}$ ,  $103^{\circ}$ , and  $103^{\circ}2$

16th day—Pulse miserable, varying between 102 and 116 Temperatures, taken as before,  $103^{\circ}$ ,  $103^{\circ}2$ ,  $103^{\circ}2$ ,  $103^{\circ}4$  Delirium, restlessness, prostration Tongue dry and brown No iliac tenderness or gurgling Spots disappearing Stools (three) typical No cough

17th day—Pulse varying between 114 and 132 Temperatures  $103^{\circ}2$ ,  $103^{\circ}$ ,  $105^{\circ}$ ,  $105^{\circ}$  Lies equally well on each side and on back Tongue white, moist, loaded Pupils contracted, only slightly sensitive

18th day—Very little sleep, delirious only at night, then violent, but not mischievous Pulse 120, dicrotic, all day Temperatures (in axilla)  $103^{\circ}6$ ,  $103^{\circ}$ ,  $104^{\circ}$ ,  $104^{\circ}4$  Tongue brown, coated, dry down the middle Stools (four) very copious and quite characteristic Tympanites increasing Distinct iliac gurgling, but no marked tenderness In the evening the pupils were widely dilated, but sensitive

19th day—Semi-comatose, livid Stools unconsciously, they are now brown liquid, extremely fetid Pupils dilated, very slightly sensitive No distension of abdomen Quite delirious, articulation very defective Tongue moist, brown, thickly loaded, patient keeps it out after being with difficulty induced to protrude it for inspection

20th day—Pulse running Respiration 42 Dilated, insensitive pupils Tries to protrude tongue, but cannot Speech unintelligible

21st day—Pulse running Respiration between 48 and 56 Temperatures  $101^{\circ}8$ ,  $103^{\circ}6$ ,  $103^{\circ}$ ,  $103^{\circ}4$  Pupils dilated, when exposed to a bright light they contract, and then (the light remaining) dilate again Very considerable dysphagia Seldom recognises anyone approaching his bed Skin livid Abdomen distended When his arms are at rest the forearms are rigidly flexed, but occasionally he extends them without visible effort At night, muttering, paroxysmal sweats

22nd day—Pulse from 132 to 144. Respiration from 42 to 48 Temperatures  $102^{\circ}$ ,  $102^{\circ}4$ ,  $102^{\circ}4$ ,  $102^{\circ}4$  Slight cough, with a little mucous expectoration Less dysphagia, is taking milk and soup freely In the evening there was greatly increased rigidity of the arms. The interior of the mouth, as well as the tongue, baked, of which he is evidently not conscious

23rd day—Respiration 60 Temperatures  $102^{\circ}$ ,  $102^{\circ}$ ,  $102^{\circ}6$ , not taken at night Lying unconscious on back Forearms extremely rigidly flexed Hiccough, collapse Liquid poured into his mouth is not swallowed Involuntary evacuations had continued since the 19th day

24th day—At 2 A.M he drank a little milk, and at 2.30 A.M died

*Postmortem Examination*, 14½ hours after death—Average temperature of air since death  $40^{\circ}$  Body muscular, very slight lividity of neck, back and posterior surface of arms Eyes half open Rigor mortis strongly developed. No odour of putrefaction No discharges from any of the natural openings No bleeding from the skin or muscles on section, muscles red, dry

The diaphragm was strongly arched into the thorax Pleuræ, lungs and pericardium normal, the latter containing a few drops of serum. The right side of the heart was empty, the left full of fluid blood The stomach was much distended with gas, but was otherwise normal The great omentum was gauzy, adherent by recent inflammation to both iliac fossæ The cavity of the peritoneum contained about 6 ounces of turbid serum Slight hyperæmia of peritoneum lining the true pelvis The serous surface of the last 30 inches of the ileum, the cæcum and the ascending colon was much injected The liver was goiged with blood, otherwise normal, weighed 72 ounces The gall bladder was distended with green bile, bile ducts normal The spleen was considerably enlarged, and reduced to a pultaceous mass, it weighed 15 ounces The pancreas was normal The mesentery was hyperæmic throughout, the glands large, hard or suppurating The small intestine was normal up to within 3 feet of the valve The mucous membrane then showed minute ulcers, at first thinly scattered, then more numerous, equally distributed over the surface corresponding to the mesenteric attachment and that opposite to it As the valve was

approached extensive ulcers surrounding sloughing glands came into view. The ileo-cæcal valve had been greatly thickened, but was almost eaten away by ulceration from the ileac surface. Ulceration had attacked the free border, but had not encroached on the cæcal surface. The cæcum was distended, and contained a little yellow liquid fæces. Its mucous membrane was deeply injected, but was nowhere ulcerated. The appendix vermiformis was normal. There was no meso-cæcum, the posterior surface of the bowel being here uncovered by peritoneum. The retro-cæcal lymphatic glands were enormously enlarged, hard or suppurating. The mucous membrane of the ascending colon was deeply congested, soft, but not ulcerated. Both kidneys were symmetrically enlarged, otherwise normal. Weight together, 15 ounces.

I make no apology for the minute detail of these postmortem examinations. The information they give is exactly what is required to enable us to come to a conclusion as to the nature of the morbid processes which we class together as enteric fever, but which are certainly wanting in uniformity. It may not as yet be possible to classify these processes, but it is only by means of accurate observation of symptoms, scrupulously careful autopsies, and rigorous comparison of each clinical history with the corresponding anatomical appearances that we shall eventually arrive at materials for a scientific classification. How far treatment will benefit is a different question. The profound and rapidly developed lesions above recorded would appear fated to defy any treatment known at present.

I was once present at the autopsy of a case of enteric fever which proved fatal on, as well as could be made out, the 15th day. The patient had been indefinitely ailing for four or five days, after which his temperature curve was of typhoid character. The course of the disease was apparently benign. On the 13th day, after a large spontaneous evacuation of the bowels without hæmorrhage, there was intense collapse with symptoms of perforation. Death occurred 48 hours later. The peritoneal cavity was full of gas and liquid fæces. The coils of small intestine were enormously distended, injected, dry and rough on the serous surface. There was a large quantity of pus and lymph, with recent adhesions in the right iliac fossa. There were only two altered patches in the ileum, of which one was merely congested, but in the middle of the other, 12 inches from the valve, there was one solitary ulcer which had perforated by a pin-hole aperture. The mucous membrane of the cæcum was congested and soft, but was nowhere ulcerated.

This case serves to illustrate one form of the painful surprises which apparently benign enteric fever often has in store for us\*.

The following abstracts of fatal cases offer special points of interest although they are not completed by postmortem reports. They do not belong to the half-year now under consideration.

CASE I.—*Enteric Fever Low Temperatures Mania Convulsions Ulceration of Cornea Death*—Chinese male, aged 34. Admitted to St Luke's Hospital under my care 21st May 1887. He had been ailing for 10 days, and had been treated with purgatives and large doses of quinine. His passages were frequent, typically typhoidal, and he was sleepless. In the evening he became acutely maniacal. During the three following days he was extremely violent when not confined in a strait waistcoat. His highest temperature was 100° 9 up to the night of the 12th day. On the 13th day he had frequent involuntary evacuations.

\* Long ago RILLIET and BARTHEZ, and HENOCB, when treating of typhoid fever in young children, described cases wherein, although all the most characteristic symptoms of enteric fever were present, the postmortem signs were limited, so far as the abdominal viscera were concerned, to enlargement, softening or disintegration of one single PEYER's patch, or to a superficial and apparently trivial inflammation of the mucous membrane of the large and small intestines (*entérite typhoïde*, R. and B.) "We must, therefore, conclude that pathological alterations may be very slightly developed, or even altogether absent, without this fact authorising us to deny that a given case was one of typhoid" (HENOCB).

14th day—Quieter, complains of severe abdominal pain Abdomen tympanitic, gurgling on light pressure in right iliac fossa Skin is very dark, so that it is impossible to say whether spots are or are not present Tongue baked Temperature, morning and evening respectively,  $99^{\circ}5$ ,  $101^{\circ}2$

15th day—Both corners ulcerating at margins Temperature, as before,  $99^{\circ}8$ ,  $99^{\circ}5$

16th day—Tongue moist In the evening general convulsions, wheel movements of arms, tendency to rotate to the left round vertical axis of body Temperature  $99^{\circ}$ ,  $99^{\circ}8$

17th day—Intense excitement with extraordinary contortions Temperature  $98^{\circ}6$ ,  $103^{\circ}$

18th to 22nd day—Gradually deepening stupor Swallows milk when poured into mouth Frequent involuntary passages of brown liquid, extremely fetid No hæmorrhage, no tendency to formation of bed-sore

23rd day—Death

CASE II—*Enteric Fever Rapid course without Hæmorrhage Death*—A European female, aged 42 Admitted to the General Hospital under my care on the 24th May 1887 Was well up to the 21st May, when she experienced a violent rigor, followed by severe headache, and pain between the scapulae She had taken a sedative and followed this with a dose of quinine, as she had often suffered from malarious fever Next day it was noticed that her tongue was dry and brown During the two following nights she was sleepless and delirious, her skin was burning

4th day—Too restless on admission to have temperature taken Skin pungently hot, tongue brown and dry Two large characteristic stools in evening At night the axillary temperature was  $102^{\circ}7$  She was violently delirious

5th day—Half unconscious, muttering in sleep, searching for things under the bedclothes Pulse 96, soft and fairly full Took milk freely In the evening extreme violence, tearing night dress and bedclothes, capturing vermin, catching flies above her head Temperature at 8 A.M., noon and 10 P.M. respectively,  $102^{\circ}$ ,  $102^{\circ}8$ ,  $102^{\circ}$  No stool all day Coma-rigil at night

6th day—Less violent Intense pain in dorsal muscles on movement Sweating profusely Tongue baked No thirst, but drinks milk and broth freely when offered Respiration 60, pulse 108 No cough In the evening was quiet, had had two very copious typhoid stools involuntarily Pulse 120, respiration 45 Is very deaf, but answers rationally when she hears a question Temperatures, as before,  $103^{\circ}6$ ,  $105^{\circ}$ ,  $103^{\circ}6$

7th day—Snatches of sleep during night Pulse running Respiration 60, mere panting Lies mostly in a doze, but can be roused, and then speaks rationally Returns great strength, and twice to day struggled out of bed and walked across the room Tongue moist, swallowing easily At 4 P.M. respiration 72, she cannot be roused, nails blue Temperatures  $103^{\circ}5$  in the morning and  $105^{\circ}2$  at night, taken carefully in the axilla

8th day—Unconscious all night Died quietly in early morning Temperature immediately before death  $105^{\circ}$

CASE III—*Enteric Fever, second attack after four years Rapid Course Death*—An Englishman, aged 30, old syphilitic case Four years previously he had passed through a severe attack of typhoid fever which was complicated by frequent and profuse hæmorrhages from an ulcer on the left side of the back of the pharynx

Had been out of sorts for five days, dosing himself largely with quinine On the 4th day he got a very severe "stitch" in his right side which yielded to a dose of Dover's powder Had been sleepless since beginning of illness, and prickly heat, which had previously been out thickly on his body, disappeared on the 2nd day Constipation, anorexia, foul tongue, profuse sweating, severe occipital headache

He was seen at 7 A.M. on the 5th day Dizzy from quinine Abdomen distended, slightly sensitive, no distinct gurgling A simple enema brought away a large horribly fetid evacuation Skin

yellow Hepatic region sensitive, but no appreciable enlargement of the liver Spleen could barely be felt and was not tender Pulse which was rapid and unsteady in the morning, became quiet and full (96) towards night Temperature (morning)  $102^{\circ}8$ , (evening)  $103^{\circ}6$

Delirium declared itself on the 7th day, photophobia with violent irritability of temper on the 9th, deafness on the 10th with stupidity and yet constant agitation, a condition recalling delirium tremens, vermin-hunting on the 10th and 11th, coma-vigil through night of 12th to 13th Sleep was never good, it was got in snatches broken by visions of the most terrific kind The pulse was weak and irregular at the beginning, but became fairly good, soft, regular, not dicrotic, on the 10th day when all the nervous symptoms were at their worst It was a mere flicker for 36 hours before death No cardiac bruit was at any time audible The tongue was variable, the notes describing it as "dry," "baked," "moist," "black," on successive days, on the 11th day it was so tremulous that it could not be protruded On the 7th day there was marked hepatic tenderness, and probably enlargement, but palpation and percussion were alike impossible At first there was disgust for food, replaced by voracity from the 8th to the 11th day No complaint was ever made of thirst Sweating was profuse throughout A faint eruption of about half a dozen pinkish spots was seen close to the umbilicus on the 8th day Severe bilious vomiting occurred on the 8th day, but was not repeated The stools varied After evacuation on the 7th day of a passage "containing hard lumps, loose stuff, and a mass of putrid muco-purulent half-pulpy material" they became characteristic From the middle of the 11th day they were passed unconsciously Tympanites did not become distressing until the 11th day Right iliac tenderness first became marked on the 6th day, and gurgling on the 8th The surface and extremities were icy-cold for several hours before death, which occurred at daylight on the 13th day

The maximum temperature recorded was  $104^{\circ}6$  on the 9th night, the lowest was  $102^{\circ}3$  on the 8th morning The evening temperature was never below  $103^{\circ}6$ , and was above  $104^{\circ}$  every night after the 6th The temperature rose steadily from morning to night, and began to fall about midnight

CASE IV—*Enteric Fever, diagnosed as "Typho malarial" Overdosing with Quinine Death*—In the case of a Shanghai resident who at another port contracted what was diagnosed as "typho-malarial fever," but which from the description given was certainly enteric, during which there was intense prostration, delirium, and subsultus, tympanites, gurgling, and iliac tenderness, and which proved fatal, the diagnosis was reaffirmed after the event, on the grounds that "as there were no spots and as 'the stools were sometimes brown the disease could not have been typhoid' The patient swallowed between 60 and 70 grains of quinine daily for more than a fortnight, a treatment certainly in no wise calculated to further recovery

The occasional occurrence of such cases as this justifies the tediousness with which by means of minute descriptions I endeavour to emphasise the extreme variety in the symptoms and in the grouping of symptoms encountered in undoubted typhoid A rigid (and unlucky) treatment is likely enough to be the outcome of a rigid (and mistaken) diagnosis

The combination of dysentery with enteric fever is particularly fatal, not only on account of the double strain brought to bear on the victim's vital powers, but on account also of the grave hepatic complications which (I think) always present themselves when the two diseases occur simultaneously or run into one another Without attempting to lay down any rule, I will simply say that in almost all the instances which I have observed the dysentery has preceded the enteric fever It is not uncommon to discover ulceration of the colon in cases of apparently frank enteric fever, and ulceration of the lower end of the ileum in cases of seemingly uncomplicated dysentery But there are groups not yet sufficiently studied in which



enteric fever is grafted on to dysentery, and conversely Of the former the following case is an example —

CASE V — *Enteric Fever following immediately on Dysentery* Death — A foreign missionary, aged 32, four or five years in China, of robust physique and good family history, without any suspicion of malarious infection, was first seen on the 29th September 1882 For several days he had had diarrhoea, becoming more and more urgent Two days previous to seeking advice he noticed blood in his stools, and since then he had had an evacuation of blood, mucus and flocculent stuff at least every hour There were intense tormina before each movement of the bowels, and very painful tenesmus The total daily loss of blood was considerable Treated with ipecacuanha, the number of stools rapidly diminished to four in 12 hours, but without any change in their character There was copious vomiting of green tenacious stuff Improvement progressed, and by the 7th day of treatment the stools (two) were "loose, slightly orange, not dysenteric, very fetid" The tongue was slightly stripped, "the liver region is sensitive to percussion, and there is very slight upward enlargement, and to the left" Until this day the temperature had not exceeded 99°, but on this (which I shall call the first day of the fever) it rose to 101° at night On the 31d day the note is as follows "Stools frequent, and of frankly typhoid character, smelling horribly Delirious last night, nearly sleepless Slight tympanites The hepatic tender area is continuous with a strip of tenderness in the right iliac region Rigor in early morning Profuse sweating three times during the day Pulse (96 to 98) fairly good At night some gurgling, difficult to make out on account of sensitiveness Tongue dry, sordes on teeth" Rose spots presently appeared During the course of his illness physical prostration was intense, and dorsal decubitus was maintained from the 6th day out Sacral bed sore was threatened early, but was averted by the use of a water cushion and frequent applications of camphorated spirit There was no mental depression however The patient was almost always cheerful, and constantly announced that he was better On only one day (10th) was complaint made of severe occipital headache On the 13th day the sense of hearing was morbidly intensified, and there was much irritability about trifling noises He was frequently delirious, with intervals of complete freedom, he began to mutter on the 9th day General consciousness was preserved up to 12 hours before death Sleep, which was occasionally fairly good, was generally broken by horrible dreams, or was replaced by mere drowsiness, during which vivid visions passed before his eyes Violent rigors occurred on the 4th, 7th, 9th and 13th days, and a paroxysm of profuse sweating without rigor on the 11th The pupils were dilated from the first, and speedily became insensitive to light There was marked subsultus from the 10th day out, large movements of the hands on the 16th, and vermin hunting on the 18th All through the illness any food swallowed caused intense but not long continued pain in the umbilical region, and on the 14th day the patient described a sensation as of "something tearing deep down in the abdomen, midway between his heart and his navel" The pulse became dicrotic on the 4th day, but soon lost this character, the expansion of the vessel being generally markedly slow, even when the complete cycle was a short one (*pulsus lentus et frequens*), it was running from the 14th day onward Cardiac action was extremely feeble, and no bruit, muscular or other, was at any time audible There was slight cough with expectoration of blood-stained mucus on and after the 10th day, and the bases of both lungs were dull to percussion (hypostatic congestion) A severe paroxysm of dyspnoea occurred on the 16th day, with lividity of the lips and threatened collapse The tongue varied largely in character, sometimes normal, sometimes moist with dry and brown tip, sometimes baked, it was tremulous from the 9th day onward, and after the 15th day could not be protruded Complaint was frequently made of sore throat, the tonsils, pillars and soft palate were congested throughout On the whole, thirst was moderate, but on two days it was noted as urgent There was much difficulty about nourishment, for days at a time the patient had an utter disgust for milk, soup, arrowroot or jelly, and would make no attempt to take anything but scraped raw beef The skin became yellow on the 10th day, and it was noted on the 14th that "skin and conjunctivæ are lemon colour and the mucous membrane of the mouth extremely pale" The whole surface was during the last three days of life bathed in cold

sweat The stools were frequent, occasionally, but rarely, accompanied by straining, generally characteristic, sometimes containing solid faecal lumps, often horribly fetid They contained increasing quantities of blood clot on the 8th, 9th, 14th, 15th and 17th days, and on the last three days of life were of gangrenous odour and passed unconsciously Vomiting of brown liquid containing blood clots occurred on the 12th day, and there were severe hæmatemeses on the 14th and 17th days The urine was rather scanty (22 to 30 ounces) throughout, but contained nothing of note until the 13th day, when it became porter-like, in part from disorganised blood This condition persisted to the end Tympanites was an early symptom, it varied, diminishing on the 10th and 11th days, suddenly disappearing on the evening of the 14th day for a short period, during which it was ascertained that the liver was sensibly enlarged in all directions, but so sensitive to percussion that accurate mapping was impossible The abdominal distension was, however, generally very great, and became distressing on the 14th day, but although it increased from the 15th day until it was enormous it was not subsequently complained of Whenever the right iliac region could be explored it was found to be extremely sensitive, with distinct gurgling There was in particular one spot, just above the centre of POUPART'S ligament on the right side, which was exquisitely tender to the slightest touch

1st to 5th day	Max, 103° 8 on the 2nd night	Min, 99° 4 on the 4th morning
6th „ 10th „	„ 102° „ 7th „	„ 97° 5 „ 8th „
11th „ 15th „	„ 104° 5 „ 14th „	„ 100° 5 „ 11th „
16th „ 18th „	„ 105° 3 „ 17th „	„ 100° „ 17th „

Death occurred on the 18th day

No postmortem could be obtained, but the symptoms pointed clearly to the presence of pyæmic abscesses, probably in large number, in the liver In such cases where hæmatemesis occurs I am disposed to attribute it to rupture of varices of the lower œsophageal venous plexuses, which offer a ready receptacle for the blood of the portal system hindered in its passage through an encumbered liver During inspiration there is a derivation of venous blood to the thorax, but under normal conditions this is relieved by the bronchial, azygos and phrenic veins, which are in communication with the coronary vein of the stomach When, however, the strain on the œsophageal veins is, as in cirrhosis of the liver and presumably in widespread suppuration, vastly increased, this relief may easily prove insufficient, the œsophageal varices may give way, and hæmorrhage into the stomach be produced

The following is an instance of the second form of this disastrous combination, in which the course was extremely rapid

CASE VI—*Enteric Fever running rapidly into Dysentery Death*—A foreign lady, aged 43, had been ailing indefinitely for a few days, but had not been ill enough to stay away from an afternoon party, at which she danced several times Next day she laid up, this being probably the 4th or 5th day of the fever It was subsequently remembered that a peculiarly nauseous odour had occasionally exhaled from her skin during the four or five days previous to her lying up There was a story (afterwards verified) of cattle disease existing at the dairy whence her milk supply was derived, and she had in fact been in the habit of drinking a moderate quantity of unboiled milk, generally diluted with aerated water No other cases of illness were, however, traceable among the customers of the establishment in question Her first serious complaint was of diarrhœa accompanied by intense bladder irritability This latter symptom yielded immediately to alkaline treatment, and after the first day was in no way a feature of the illness There was no rigor at any period, but paroxysmal sweating fits occurred (the weather was intensely hot), the odour of the sweat being very marked, resembling that of stale meat until the 8th day, after which it lost its offensive character Intense prostration came on suddenly, and persisted from

first to last, with dorsal decubitus. It was noteworthy that the catamenia appeared on the 7th day (due date) and continued, ending on the 9th day, quite unaffected by the general condition.

The onset of marked symptoms was extremely sudden and their course very rapid. With the exception of a few hours of cheerfulness now and then, there was deep mental depression throughout, with anxiety about the progress of her case. On the 7th day, although when roused the patient was perfectly collected, there was incessant drowsy talking, on the 8th, muttering, on the 9th, incessant wandering. She was conscious up to the 10th day, but the 10th night and 11th day were passed in a condition of coma-vigil. The pupils were noted as widely dilated and insensitive on the 9th day. Hiccough was distressing from the 8th day out, subsultus and large movements of the hands occurred on the 9th day, and she began picking the bedclothes on the 10th. Deafness came on suddenly on the 9th day. Very little genuine sleep was obtained at any time, but she was drowsy throughout, disturbed however by visions. The pulse averaged 108, varying between 100 and 144, at first rapid with lingering expansion, then after the 8th day diastolic, a mere flicker for the last two days. Cough with expectoration of blood stained mucus was noticed on the 8th day, the effect of hypostatic congestion, which was kept in control by frequent passive movements from side to side. The heart's action was so feeble from the first that no abnormal bruit could be detected, distressing dyspnoea, no doubt of cardiac origin, occurred on the 10th day. The tongue was very variable. Already on the 5th day it was brown, dry and hard, it subsequently became moist at the tip and edges, loaded with white fur on the surface, towards the end it and the whole mouth became dry and black. It was tremulous, and power of protruding it was lost on the 10th day. On the 9th day the lips were cracked and the teeth covered with sores. Throughout there was marked disgust for food, and usually vomiting after any attempt to swallow. Vomiting was from the first most distressing. On the 5th day it was incessant, the vomit consisting of yellow and green mucus which subsequently changed to brown or yellow liquid with stringy mucus, on the 9th day it ceased without any assignable cause. On the 8th day the skin and conjunctivæ were yellow. On the 8th also a few livid spots were detected in the umbilical region, supplemented by others on the 9th. The stools were characteristically typhoidal on the 5th day, extremely fetid, on the 6th day they consisted of almost pure blood, on the 7th day blood disappeared for some hours, and a few small faecal lumps were observed in the yellow deposit from typical discharges, on the 8th they were made up of blood and blood stained pulpy lumps of mucus and faeces, evacuated without staining, on the 9th they were frankly dysenteric with much tenesmus, on the 10th and 11th they were liquid, involuntary, grunginous. Meanwhile, in spite of the rapid development of dysenteric symptoms, there was no bladder distress, and the bladder could be emptied without any desire to evacuate the bowel. As regards frequency, there were six stools on the 5th and on the 6th, nine on the 7th, 11 on the 8th and 10th, 13 on the 9th. Urine was copiously secreted, it at first contained no albumen, but after the 8th it contained a great deal, due to the diffusion through it of much altered blood, no doubt of renal origin. At no time was there any tympanites, on the contrary, excavation of the anterior abdominal wall was noted on the 9th day. Gurgling in the right iliac fossa, with exquisite tenderness, was marked on the 5th day, the hyperæsthesiveness disappearing two days later. On the 7th day the spleen could be distinctly felt, the liver on the same day was found to reach the upper edge of the sixth rib. Its lower border could not be defined on account of general abdominal tenderness. A couple of days later, when the abdominal wall could be palpated with more freedom, its lower edge was  $1\frac{1}{2}$  inch below the costal arch in the nipple line. The highest temperature noted was  $102^{\circ}5$  at noon on the 7th day and on the 10th morning, the lowest was  $99^{\circ}2$ , registered on the 6th morning. Death occurred on the 11th day, that is to say, exactly a week from the day on which the patient felt ill enough to take to her bed.

Many years after the cases just related had been observed I had an opportunity, through the kindness of Dr MARTEL, of the French Navy, of studying the history of a case of dysentery immediately followed by enteric fever which proved fatal.

CASE VII—*Enteric Fever following immediately on Dysentery Death Liver riddled with Abscesses*—

The patient was 24 years old. His illness had begun with ordinary diarrhoea, neglected for several days until mucus and blood were observed in the stools. For 16 days ipecacuanha, sulphate of soda, and nitrate of silver in euema were tried in turn without any satisfactory result, the stools ranging in number from 12 to 15 in 24 hours, and consisting of mucus, epithelial debris and blood. There was no fever until about the 19th day of the disease, but after this and until the end the temperature varied between  $100^{\circ}5$  in the morning and  $103^{\circ}3$  at night. Ipecacuanha was very badly borne. The tongue was stripped of epithelium, and here and there was fiery. On the 23rd day (5th day of the fever) pus appeared in the stools, which however were not fetid. They became thin, yellow, very frequent, contained a considerable quantity of altered blood, blood clot and clots of mucus, and were generally accompanied by tenesmus. The anterior abdominal wall was retracted. Paroxysms of colicky pain, chiefly after food, caused much distress. These pains were referred to the hypogastric region. There was much left iliac tenderness, and the descending colon could be mapped out, thickened and knotty. Meanwhile prostration and depression became marked. The temperature followed a typical typhoid curve, but the pulse was regular and the skin soft and natural. There was obstinate sleeplessness. There were no bladder symptoms. On the 20th, 21st and 22nd days of the fever profuse intestinal hæmorrhages occurred, amounting to from 50 to 60 ounces on each occasion. There was no hæmatemesis. Death on the 23rd day.

The autopsy revealed innumerable small abscesses in the liver, varying from the size of a pea to that of a Brazil-nut, so that any piece of the gland when thoroughly washed presented the appearance of a very coarse meshed sponge. The colon was ulcerated throughout its entire extent, and contained a considerable quantity of altered blood. An ulcer in the cæcum had perforated. The lower end of the ileum was sown with circular ulcers in the midst of infiltrated areas, some of which had not broken down, corresponding to PEYER'S patches.

CASE VIII—*Enteric Fever Pyæmia Temporary Aphasia Death*—A Japanese merchant travelling. First seen 22nd May 1887, supposed to be the 16th day of his illness. About the 7th May, at Hongkong, shortly after arriving from Formosa, he began to have fever. Next day there was a distinct rigor, followed by heat and sweating, he began to cough, and the fever became continued. On the 11th May ulceration of the throat with external swelling and dysphagia. On the 14th May, being still in this condition, started for Japan in the *Menzaleh*, which began to founder during the night of the 19th May. In the middle of a storm he was exposed to cold during three hours while being transferred to another steamer. Arrived in Shanghai on the 22nd May.

His servant states that burning heat alternates with profuse sweating. Sleep has been disturbed all along, but there has been no distinct delirium. Since the 17th May (11th day) the bladder and bowel have been evacuated unconsciously. The stools are described as yellow, semi-liquid, stinking. Has lately complained of pain and tenderness in left shoulder-joint. On arrival here the left shoulder and left knee were red, swollen, hot, sensitive to pressure and spontaneously painful.

It is not known whether he has had syphilis. Absence of Ricord's rosary from groins. Nothing known about his treatment, no temperature record.

16th day—At noon patient had a severe rigor, and shortly afterwards coughed up some blood-stained mucus. After the rigor he was aphasic for about an hour. There were no other paralytic symptoms, but he remained stupid. Urine could not be collected for examination. Shortly after noon when he was seen, the temperature was  $104^{\circ}$ , pulse 96, respiration 24. Tongue dry, skin yellow, gums anæmic. No notable enlargement nor any tenderness of either liver or spleen. At 5 P.M. temperature was  $100^{\circ}$ , at 8 P.M.  $104^{\circ}$ , and at midnight,  $96^{\circ}$ . He was now able to recognise his friends. Pulse extremely compressible, lower extremities cold, tongue clean, slightly dry. The usual cardiac bruit simulating that of pericarditis was present. The lungs could be explored only with great difficulty, there was fine crepitation at the left base, and perhaps elsewhere. Abdomen swollen, resonant. Special tenderness with gurgling in the right iliac fossa. Two well-marked rose spots near the umbilicus.

17th day—Subsultus, no delirium Had had snatches of sleep during the night Temperature at 7 A.M., noon and 7 P.M. respectively,  $103^{\circ}6$ ,  $102^{\circ}3$ ,  $102^{\circ}1$

18th day—Temperatures, taken at the same hours,  $101^{\circ}8$ ,  $103^{\circ}$ ,  $105^{\circ}4$  Much distress caused by tympanites

19th day—Temperatures  $101^{\circ}2$ ,  $103^{\circ}$ ,  $104^{\circ}$  Sinking

20th day—Death

This last case would appear to have begun as what is known as "Tamsui fever," a malarious remittent so far as my observation of many imported cases goes But that either it passed into typhoid, or that typhoid supervened upon it, or that there is no generic difference between the two diseases, is certain Had I been fortunate enough to secure a post-mortem some clue would possibly have been discovered to that mysterious connexion between remittent and typhoid which has given origin to the compound term "typho-malarial fever" However convenient this term may be to cloak lack of knowledge and to satisfy ignorant and pretentious relatives or friends, it is radically objectionable inasmuch as it crystallizes a pathological doctrine which in all probability is utterly wrong, and suggests a line of treatment which is distinctly hurtful The ordinary conception of enteric fever as a pathological species of the same value as small-pox must I conceive be widened, and if there really be a species causally characterised by EBERTH'S bacillus it will eventually I am confident be, at least temporarily, assigned a place in a mixed group of "Enteric Fevers"

During the period under review 16 cases of enteric fever which terminated in recovery came under my observation in the Shanghai General Hospital and in private Of these, 15 were European males, and one was a Chinese female married to a foreigner Their ages were as follows—

European males, between 10 and 20 years	2	both residents
" " " 20 " 30 "	9	1 resident, 8 visitors
" " " 30 " 40 "	4	3 " 1 "
Chinese female, aged 16, resident		

I summarise these cases in the same form as was adopted in my last Report

CASE I 4th October 1888 Chinese female, aged 16, nursing a three months old baby—*Symptoms previous to admission*—Rigors, intense muscular pains, sleeplessness, vertigo Profuse purging after a small dose of castor oil

*Condition on admission* (5th day)—Tongue brown, hard, with red edges No special abdominal tenderness, some gurgling Urgent thirst Temperature, noon,  $104^{\circ}$ , 9 P.M.,  $103^{\circ}7$  Stools frequent, small, liquid, yellow, with flocculent sediment, very offensive

*Prominent Symptoms during course of Disease*—No delirium, severe temporal headache, lasting for several days, a reasonable amount of sleep obtained throughout with an occasional dose of chloral, milk and soup taken freely Breathlessness on exertion, but nothing discoverable in heart or lungs to account for it Stools characteristic, varying from five to nine in 24 hours Distressing tympanites and general abdominal sensitiveness until the 12th day Scattered eruption on abdomen and lower part of thorax on the 10th day Milk secretion diminished, but not arrested Tongue generally white, loaded, with red edges and tip, but occasionally normal The temperature fell to normal on the 18th day, after which it was subnormal every morning until the 22nd day After the 22nd day it did not rise above  $99^{\circ}$  The highest temperature was  $104^{\circ}$  on the 5th, 7th, 12th and 14th days The maxima declined rapidly after the 16th day No sequelæ

CASE II 4th October 1888 British man of-war's man, aged 20 — *Symptoms previous to admission* — Pains in head and limbs, sore throat, slight right iliac tenderness, tongue white, loaded Temperature gradually rising from  $100^{\circ}$  on the first night to  $104^{\circ}$  on the fourth morning No diarrhoea, motions dark

*Condition on admission* (4th day) — Sleepless or restless, with horrible visions No headache, no cough or any heart or lung trouble, no noticeable enlargement of liver or spleen Marked tenderness, but no gurgling in right iliac fossa Dulness and resistance along colon A soap enema brought away an incredible quantity of fetid solid brown and black faeces

*Prominent Symptoms during course of Disease* — Severe muscular pain in back and legs, headache not marked A reasonable amount of sleep was obtained with a sedative now and then Occasional subjective feeling of cold, but without rigor Delirious only on 12th, 24th, 33rd and 34th days On the 12th day there was subsultus, which passed off Constipation, necessitating frequent simple enemata The stools very fetid, consisting generally of a couple of hard lumps followed by a characteristic "pea-soup" evacuation Tongue generally white and moist, occasionally dry Dirotism of pulse detected by sphygmograph on the 6th day, appreciable to the finger on the 8th day On the 12th day there was marked retraction of the abdomen, which disappeared after a few hours No spots observed at any time He took food freely

On the 25th day, the morning temperature having fallen to  $99^{\circ} 4$ , he sat up for some time in his bed uncovered When seen shortly afterwards he had had a violent rigor, his axillary temperature was  $105^{\circ}$ , and he was in a condition approaching collapse No permanent harm followed this adventure On the 27th day a mass of enlarged and indurated glands was discovered surrounding the left saphenous opening The temperature first fell to normal on the 28th day, after which it varied between very wide limits, and in a seemingly capricious manner, up to the 38th day Thus, without marked alteration in the general condition, it reached  $105^{\circ}$  in the early morning of the 31st day, not falling below  $103^{\circ}$  for 24 hours After two days of almost normal readings the thermometer registered  $103^{\circ} 6$  at noon on the 37th day and  $104^{\circ} 6$  at 5 P.M. On the 56th day there was a sudden afternoon rise to  $101^{\circ}$  All these rises were treated with acetate of ammonia and quinine, and speedily disappeared Apart from the fugitive incident on the 56th day, the temperature remained normal after the 38th day Some subsequent trouble was experienced from oedema of the left leg, connected probably with persistency of the glandular enlargement before mentioned The patient was discharged well on the 71st day

It was a question with me whether the intercurrent attacks of fever during convalescence were not of malarial character But the patient had never lived in a malarious district, and had been but a short time on the China coast

The following case was not under my care during his attack of enteric fever The history is one of a somewhat grave sequela

CASE III 8th November 1888 Clerk, aged 36 — Patient was in hospital from the 25th March to the 28th April 1888 with severe enteric fever Before leaving he had pain in the lower left chest wall anteriorly, followed by a swelling which burst about the beginning of June, and has ever since gone on draining two or three fluidrachms of serous and flaky pus daily He has frequent attacks of fever of short duration, and the discharge increases before these attacks come on His complexion is waxy and features puffy Neither liver nor spleen is sensibly enlarged Appetite good, bowels regular Has not suffered seriously from his lesion until a few weeks ago, since which time it appears to him to cause slight attacks of spasmodic dyspnoea Tongue brown, loaded Temperature normal Urine neutral, S.G. 1.015, straw coloured, with slight mucous cloud Filtered, it gave no deposit on boiling or when treated with nitric acid in the cold Boiled with nitric acid it turned a delicate and permanent pink

Half an inch to the left of the middle line of the sternum and  $3\frac{1}{2}$  inches above the tip of the ensiform cartilage there is a fungating ulcer The probe entering by the side of the excrescence passes

backwards and outwards at an angle of  $30^{\circ}$  with the surface for  $2\frac{1}{4}$  inches, when it enters a smooth cavity. No dead bone felt. The exploration was very painful.

There was no sign of deposit in the lungs, and this, along with the history and the patient's general appearance, seemed to negative the suggestion of a tubercular abscess.

A semi-circular flap, 3 inches in radius, with its convexity downwards and its base extending horizontally from the inner edge of the left mammary gland to the middle of the sternum, was with the areolar tissue and muscle raised from the thoracic wall. The internal intercostals between the fifth and sixth costal cartilages were divided, when an abscess cavity was opened, of which the posterior wall was formed by new tissue matted over the pleura and pericardium. The fifth rib was carious for about an inch from its articulation, it was resected. The upper half of the anterior inch of the sixth rib was also carious, and was chipped and scraped away. The sixth cartilage was found to be calcified, and was excised. An abscess cavity was now found in the lower third of the gladiolus, containing much debris and pus. This was cleared out with a sharp spoon, and a counter-opening made into it from the front of the bone. The cavities were thoroughly rubbed with iodoform, drained, and the flap replaced. Recovery was uneventful, but healing was not complete before the expiration of 10 weeks.\*

CASE IV 9th November 1888 English missionary, five years in Yunnan, where he acquired malarial fever, which generally assumed the tertian type. Since his impregnation with malaria he has suffered much distress from cardiac palpitation on any exertion.

*Symptoms previous to admission*—Fever, severe occipital headache with spinal and articular pain, general muscular aching, profuse sweating, sleeplessness, rapid pulse (generally from 120 to 132), fair appetite, bowels regular and normal, tongue brown but moist, no cough. On the evening of the 4th day his temperature was  $105^{\circ}$  1. After this the tongue became dry, and during the 5th day the temperatures were—

1 A.M., $104^{\circ}$	1 P.M., $103^{\circ}$ 2	7 P.M., $104^{\circ}$
7 „ $104^{\circ}$	5 „ $104^{\circ}$	10 „ $104^{\circ}$ 1
8 „ $103^{\circ}$ 3		

The patient was now much excited, but not delirious. General muscular tremor. Tympanites, but no marked iliac tenderness. On the 6th day he was delirious.

*Condition on admission (6th day)*—Heart and lungs normal, liver not sensibly enlarged, splenic dulness extends to mid-axillary line, but the spleen cannot be felt beneath the ribs. Tongue brown and dry, intense subjective sensation of cold. No gnawing or tenderness, abdomen moderately distended. Temperature at 4 and 9 P.M. respectively,  $103^{\circ}$  7,  $104^{\circ}$  3.

*Prominent Symptoms during course of Disease*—Intermittent delirium up to 11th day. Sleep scanty and much disturbed by dreams up to end of third week. Sudden and plentiful eruption of rose spots on the abdomen on the 11th day. Tongue extremely variable in appearance, sometimes normal, then white and loaded, then brown and baked, or moist with a hard brown strip down the middle. The stools were also variable in character, sometimes solid, sometimes consisting of brown serous liquid with or without faecal lumps, generally characteristic, always frequent and very fetid. The pulse became markedly dicrotic on the 11th day. On this day also the patient became deaf, and for the first time complained bitterly of thirst. There was a copious secretion of thick yellow mucus from the pharynx, which caused a good deal of distress in hawking it up. Throughout the disease there were frequent short sweating fits, in no way periodic. The temperature first fell to normal on the 23rd day, and did not rise above  $99^{\circ}$  after the 24th day. The highest temperature registered was  $105^{\circ}$  1 on the 4th night. No sequelæ.

\* Whether EBERTH's bacillus would have been found in the abscess cavities I do not know, it was not looked for. But it has now been often demonstrated in sequential osteoperiosteal abscesses, pleural exudations, etc.

This case, if by chance it had come to a postmortem, would have offered an opportunity of obtaining light on the connexion between a certain form of malarial intoxication and a certain form of enteric fever, which was unfortunately lost in the case reported on page 27

CASE V 17th November 1888 French man-of-war's man, aged 21—*Symptoms previous to admission*—Chill, repeated rigors, cough, with bronchitic expectoration and an occasional streak of blood Diarrhoea Morning temperature after the first day varied between  $103^{\circ} 2$  and  $104^{\circ}$ , evening temperature,  $104^{\circ} 2$  Sleeplessness

*Condition on admission* (4th day)—Somewhat dusky, orthopnoea, cough, scanty, frothy expectoration, relative dulness of right side of chest posteriorly No crepitation, dry râles everywhere, respiration 20, breathing puerile on left Heart sounds healthy but feeble Tongue brown, red tip and edges Temperature all day  $104^{\circ}$ , with a run up to  $105^{\circ}$  between noon and 1 P.M. Pulse 100, of good character Complains now of constipation There is no sensible enlargement of liver or spleen

*Prominent Symptoms during course of Disease*—Delirium first declared itself on the 9th day, with a sudden fall of the temperature to normal and tendency to collapse It persisted to the 42nd day, and was occasionally of violent character, but more usually muttering The pupils were for the most part widely dilated, and but slightly sensitive to light Subsultus was first noticed on the 21st day, and disorderly muscular movements, chiefly of the head, a little later There was no fly catching Spinal pain was not complained of, but headache was often severe, and general muscular aching appeared to be constant, as was inferred from the patient's almost perpetual groaning Deafness was observed on the 7th day, and persisted until after convalescence was fully established The amount of sleep obtained was variable, the patient sometimes slept quietly with eyes firmly closed for four or five hours at a time, and at other times was completely wakeful, or was roused by horrible visions from short snatches of sleep, in spite of moderate doses of sedatives The circulation was miserable throughout, the pulse varying between 96 and 132 The chest cleared gradually, yet occasionally without any corresponding physical sign fits of irregular and laboured respiration came on, the breathing rate rising to 40 or 42, and so remaining for an hour or two The tongue, which was usually dry and brown, was often perfectly normal for a few hours at a time On the 13th day sordes began to collect on the teeth, and the lips were dry and fissured Profuse sweating, with nothing to explain it, occurred on the 15th and 48th days Generally the skin was dry and parchment-like The eruption came out plentifully on the 10th day, and followed the usual course Enormous quantities of bile were vomited on the 5th day, but subsequently the stomach was quiet The stools were extremely variable, sometimes solid, at other times loose and bilious, olive coloured or black and oily, yellow, frothy, liquid, with much sediment, but generally characteristic They were passed involuntarily on the 23rd day, not afterwards They varied in number from four to eleven in 24 hours, and were always horribly offensive The condition of the abdomen varied, it was occasionally tympanitic, but was strongly retracted on the 24th day, there was sometimes marked iliac tenderness, often none, always gurgling Smart hæmorrhage (black and clotted) occurred on the 19th and 22nd days, but seemed to be effectually controlled by watery extract of hamamelis in large doses (4 fluidrachms every second hour) The temperature was never excessive, and followed a curious curve, which may be followed in the accompanying table—

1st to 10th day	Max, $105^{\circ}$ on 4th day	Min, $98^{\circ} 4$ on 9th day
11th „ 20th „	„ $102^{\circ} 7$ „ 18th „	„ $99^{\circ}$ „ 12th „
21st „ 30th „	„ $102^{\circ} 2$ „ 22nd „	„ $98^{\circ}$ „ 29th „
31st „ 40th „	„ $100^{\circ} 6$ „ 31st „	„ $96^{\circ}$ „ 34th „
41st „ 50th „	„ $103^{\circ}$ „ 50th „	„ $98^{\circ} 4$ }
51st „ 60th „	„ $103^{\circ} 2$ „ 51st „	„ $98^{\circ}$ } frequently
No sequelæ		

CASE VI 7th December 1888 Officer of steamer, aged 25, recently arrived in China, has never had fever of any kind—*Symptoms previous to admission*—Chill, general malaise, severe lumbar pain,



no headache, loss of appetite, yellow, liquid, painless diarrhoea. Violent epistaxis on the 6th day of his illness, up to which time he was being ordered 15 grains of quinine five or six times daily. No headache, no cough. Urine porter-like. Sleepless.

*Condition on admission* (8th day)—Tongue loaded, brown in centre. No pain or gurgling in right iliac fossa. No spots. Stools infrequent but characteristic. Nothing to be discovered as regards thoracic or abdominal viscera.

*Prominent Symptoms during course of Disease*—Intense prostration throughout, severe abdominal pain without tympanites. Sleep generally fair. Pulse always slow (65 to 72) and hammering. The tongue was variable, often normal, generally white with red tip and edges, or dry and stipped of epithelium. Stools generally characteristic, infrequent, once or twice dark oily diarrhoea. Rose spots appeared on the 11th day. Iliac sensibility was never marked, it was first observed on the 10th day. The maximum temperature recorded was  $103^{\circ}$  at noon of the 9th day. The temperature fell to normal on the 13th day, and did not rise above that point after the 19th day. No sequelæ.

CASE VII American naval officer, aged 23—*Symptoms previous to admission*—Malaise for seven days, rigors, evening temperature has risen to  $103^{\circ} 5$ . Has been dosed with aloes, digitalis and quinine. Constant uneasiness in bowels without diarrhoea.

*Condition on admission* (8th day)—Flushed. Temperature (1 P.M.)  $102^{\circ} 8$ . Tongue brown, with bright red edges. Pulse fairly strong. No appetite, no pain. Abdomen slightly distended, no gurgling or tenderness in the right iliac region. Pupils widely dilated, insensitive. No notable increase in size of liver or spleen. Heart and lungs normal.

*Prominent Symptoms during course of Disease*—The pupils continued widely dilated and insensitive up to the 25th day. No headache or other pain was complained of except frequent abdominal cramp (colic). There was no deafness. Sleep was variable, occasionally sound, but usually disturbed by dreams, and the eyelids were frequently half open. The pulse was often intermittent, was once or twice dicrotic, but was never miserable. There was occasional slight cough with frothy expectoration. The tongue varied from a normal condition to extreme dryness. The pharynx was congested. Thirst was never urgent, and nourishment was taken well throughout. Very heavy sweats occurred on the 16th day without producing any effect on the temperature. For the first time, on the 18th day, an eruption (plentiful) of rose spots was observed on the abdomen. This had been carefully looked for every day. The stools were usually characteristic, occasionally lumpy, infrequent. Tympanites, which was marked at first, gradually disappeared. There never was much abdominal tenderness, and gurgling was first obtained on the 18th day. The maximum temperature recorded was  $104^{\circ} 2$  on the afternoon of the 9th day. The temperature fell to normal on the 17th, 19th and 25th days, and after this last day it was always normal in the morning. It did not exceed  $99^{\circ}$  after the 24th day. There was a gradual declension after the 17th day. On the 42nd day a herpetic eruption was observed on the reflexion of the prepuce.

CASE VIII 29th December 1888 Maine engineer, aged 38—Admitted on the 12th day of mild enteric fever. Temperature varied between  $100^{\circ}$  and  $101^{\circ} 5$ . There were, however, severe headache and sleeplessness, anorexia, frequent characteristic stools, marked gurgling and slight iliac tenderness. The tongue was normal throughout. All the special symptoms cleared away by the 15th day, but the patient was left profoundly anæmic, white lips and gums, breathlessness, obviously hæmic murmur at apex and base of heart, lungs normal, no marked loss of muscular strength. There was slight œdema of the ankles, and a faint cloud of albumen in the urine. Discharged well on the 26th day.

CASE IX 31d January 1889 American naval officer, aged 26—*Symptoms previous to admission*—Indisposed for a week. Rigors, severe pain in lumbar region and extremities, thirst, anorexia, sleeplessness. Temperature on 6th day at 1 P.M., 3 P.M., 6 P.M. and midnight respectively,  $102^{\circ}$ ,  $102^{\circ} 7$ ,  $103^{\circ} 8$ ,  $102^{\circ}$ .

*Condition on admission* (8th day)—Pulse 100, vibrating Tongue loaded Abdomen tympanitic, no iliac tenderness or gurgling No enlargement of liver or spleen Heart and lungs normal, no cough, headache or prostration Some lumbar pain

*Prominent Symptoms during course of Disease*—Delirium occurred on the 10th and 11th days After the 10th day until convalescence was fully established the pupils were widely dilated Sleep was tolerably good throughout The pulse remained large, soft and regular The tongue varied, sometimes normal, generally white and loaded, never dry There were very frequent sweating fits The skin and conjunctivæ became yellow on the 12th day, gradually clearing by the 17th day The urine during this period was porter-like, yet the stools continued bilious The stools were occasionally solid, generally characteristic, infrequent, fetid There was never any tympanites, tenderness or gurgling On the 10th day three spots were observed, but when these disappeared there was no fresh eruption The maximum temperature recorded was  $104^{\circ}$  on the 7th night The temperature fell to normal on the 11th day, and did not subsequently rise above  $99^{\circ}$  The general course of symptoms was not, however, in any way affected by the lowered temperature No sequelæ

CASE X 15th January 1889 British man-of-war's man—*Symptoms previous to admission*—Malaise for eight days, beginning with a severe rigor, "rheumatic" pains in loins, extending down thighs Restless nights Anorexia Rising temperature (9th morning,  $103^{\circ} 6'$ ) No diarrhoea Tympanites Has been taking quinine in 10 grain doses three times daily

*Condition on admission* (9th day)—Marked prostration, indifference Temperature at noon  $104^{\circ} 4'$  Pulse 102, full and soft Pharynx congested No cough or hurry of respiration No special iliac sensitiveness, no gurgling The liver is not enlarged The convex border of the spleen can be felt beneath the ribs No tenderness Heart and lungs normal

*Prominent Symptoms during course of Disease*—Marked prostration throughout The fever appears to have developed a latent syphilis, dating back several years On the 44th day a distinct coppery eruption appeared on chest and forearms, and on the following day specific sore throat declared itself, with œdema of the soft palate, ulceration of the left anterior pillar, and dysphagia But what specially characterised the case was the frequent occurrence of intestinal hæmorrhage On the 12th, 17th, 18th, 19th and 20th days small quantities of blood were seen in the stools On the 21st day three hæmorrhages occurred, amounting to 80 ounces of scarlet blood, which speedily coagulated The patient was blanched by the bleeding, but showed no signs of collapse The temperature, which had been  $104^{\circ}$  on the night of the 20th day, was on the 21st,  $99^{\circ} 5'$  (7 A.M., four hours after the first hæmorrhage),  $99^{\circ} 6'$  (noon),  $99^{\circ} 8'$  (5 P.M.),  $100^{\circ} 2'$  (10 P.M.) It rose again on the 22nd day Three hæmorrhages, amounting to 17 ounces, occurred on this day, mostly black clots, but had no effect on the temperature Again, on the 24th and 37th days there were small bleedings Whether in consequence of, or independent of, the administration of hamamelis, there was a rapid arrest of the menacing bleeding of the 21st day after lavish use of the drug Three lumbricoid worms were expelled during the illness, two by the bowel and one by vomiting Apart from complications, the symptoms observed were as follows Sluggishness of the pupils from the first, which became wide dilation and absolute insensitiveness to light on the 19th day Much muscular tremor, which, oddly enough, disappeared after the hæmorrhage Back pain, which was distressing in the beginning, speedily disappeared Deafness was marked after the 15th day Sleep was variable The patient often slept with his eyes half open, and was often sleepless, but in general a fair amount of sleep was obtained There was at first a curious back stroke immediately after each beat of the pulse, it then became vibrating, and afterwards dicrotic, but the dicrotism disappeared after the hæmorrhage The usual systolic bruit at base and apex was present after the 13th day There was occasional cough, with nothing in the lungs to account for it, it was due probably to pharyngeal inflammation As early as the 15th day there was deep injection of the pharyngeal mucous membrane, and much distressing hawking of blood-stained mucus Paroxysmal attacks of sighing respiration came on now and then without assignable cause The condition of the tongue was variable, often normal, then dry, or brown and baked

without obvious connexion with other symptoms. It was frequently tremulous, but without fibrillary twitching. The breath was offensive throughout, due probably to the condition of the pharynx. Paroxysms of profuse sweating often occurred, but had no effect on the temperature. The cheeks were now and then deeply flushed, from the 44th to the 47th day the skin was yellow, as also were the conjunctivæ. At the same time there was no hepatic tenderness, and the stools though constipated were not deficient in bile. Severe bilious vomiting occurred on the 45th and 46th days. Twelve spots of rose rash were counted round the umbilicus on the 13th day. On the 44th day, as mentioned before, a syphilitic eruption appeared on the chest and arms. The stools were variable, occasionally dark and solid, or characteristically typhoid, or brown liquid, from one to nine in 24 hours. From the 38th day onward constipation was troublesome. Tympanites was sometimes present, generally absent. Tenderness and gurgling were present from the 10th to the 30th day. The following table shows the course of the temperature —

8th to 10th day	Max, 104° 4 on 9th day	Min, 102° 4 on 10th day
11th „ 20th „	„ 104° frequently in afternoon	„ 101° 5 „ 18th and 20th days
21st day	„ 102° 2 ( <i> hæmorrhage</i> )	„ 99° 5
22nd to 24th day	„ 104° 6 on 22nd day	„ 100° on 24th day
25th „ 30th „	„ 99° 8 „ 25th and 30th days	„ 97° 5 „ 28th „
31st „ 40th „	„ 104° 3 „ 37th day	„ 98° 8 „ 32nd „
41st „ 50th „	„ 104° 2 „ 44th day ( <i>syphilitic eruption</i> )	„ 99° „ 50th „
51st „ 55th „	„ 98° 6 frequently	„ 96° 8 „ 53rd „

There were no sequelæ

CASE XI 19th January 1889 American sailor, aged 24—*Symptoms previous to admission*—General malaise, shivering, night sweats. Pains everywhere, no appetite, no sleep, or only short snatches disturbed by horrible dreams. Constant trembling.

*Condition on admission* (4th day)—Temperature 101° at 10 A.M. Tongue dry, pupils dilated, pulse vibrating, no distension or tenderness of abdomen, stupid.

*Principal Symptoms during course of Disease*—Severe pain in the legs was constantly complained of. The pupils, with an inexplicable interval between the 22nd and 26th days, during which they were sensitive, were widely dilated. Sleep was generally disturbed by horrible dreams. The pulse presented a back stroke after each beat, difficult to describe, but different from ordinary dicrotism,\* or it was dicrotic, from the 8th to the 21st day it was remarkably slow—40 to 66 per minute, the slowness being due to prolonged expansion of the artery†. There was slight cough, with nothing discoverable in the chest to account for it. The tongue was variable, from time to time noted as “dry,” “baked,” “brown,” “white and moist,” and normal, these changes occurring in the course of a few hours. Sweating was frequently profuse. Three spots of rose rash were discovered on the 12th day. Food was taken freely. The stools were frequent, consisting at first of inky fluid, then generally characteristic with occasionally olive lumps, or brown fluid with yellow sediment. Slight gurgling was observed on the 7th day, there was at no time marked tenderness. The maximum temperature was 104°, recorded on the 4th day. The temperature fell to normal on the 14th day, and never again rose above it, although the general course of symptoms proceeded in the usual way to the 30th day, when convalescence was established. No sequelæ.

\* It closely resembled, if it was not identical with, the “pulsus bisferiens” of aortic stenosis, but I could find nothing to explain it.

† The “pulsus tardus” or “lentus” of old authors, as opposed to the “pulsus rarus” or “infrequens,” with which it is frequently confounded in mistranslation. The true meaning is “lingering.” Thus —

Media fert tristis sucos *tandumque* saporem

Felcis mali.

VIRG, *Georg*, II, 126

—the lingering flavour,

Artus atque hedera procera adstringitur illex,

Lentis adhaerens brachius

HOR, *Epod*, 27

—in lingering embrace

CASE XII 22nd January 1889 American man-of-war's man, aged 44—*Symptoms previous to admission*—Malaise for 14 days, no appetite, sleepless, violent headache, constipation, temperature for last two days  $101^{\circ}$  in morning,  $103^{\circ}$  at night

*Condition on admission* (exact period of disease not known)—Tongue dry, flat, fiery red Pulse dicrotic Pupils dilated but sensitive Severe headache, no muscular pain Slight tympanites, gurgling and sensitiveness Temperature on admission (noon)  $102^{\circ}6$  Pulse 72, full and soft No eruption Nothing discoverable in chest Liver extends slightly below costal border Spleen not sensibly enlarged

*Prominent Symptoms during course of Disease*—Intense prostration from the first, with early and prolonged delirium Pupils were dilated and usually insensitive until convalescence was established There was no marked headache, backache or muscular pain He became deaf on the 10th day after admission The respiration from time to time became superficial, rapid and laboured, without cause discoverable on examination of the heart and lungs Sleep was variable, generally disturbed The pulse continued dicrotic until near the end of the fever and long after the temperature had fallen During the first six days of the intermediate fall of temperature, as noted below, the pulse rate was remarkably slow (48 to 60), due to prolonged expansion of the artery The tongue changed rapidly through all degrees of dryness, with normal intervals, transverse fissures were often observed It was notably tremulous on several days All through nourishment was well taken Sweating occurred frequently and was profuse There was no rose-rash at any time The stools were infrequent, generally characteristic, sometimes lumpy, vainishy, brown and watery Constipation had occasionally to be overcome by enemata On the 7th day after admission there was a hæmorrhage to 44 ounces, mostly black clots This had no effect on the temperature and did not recur, it was treated with hamamelis Tympanites was present throughout, it was sometimes considerable There was not much local tenderness, but iliac gurgling could at all times be produced by gentle palpation The temperature course was instructive The fever had practically disappeared for some days, when on the 30th day after admission the patient obtained possession of and ate some food which had been served to a ward companion The effect was immediate in causing a return of fever, which, however, could not justly be considered a true relapse

1st to 12th day after admission	Max, $104^{\circ}2$ on the 2nd day	Min, $99^{\circ}2$ on the 11th day
13th „ 30th „ „	„ $99^{\circ}8$ „ 30th „	„ $95^{\circ}$ „ 20th „
31st „ 43rd „ „	„ $104^{\circ}2$ „ 39th „	„ $98^{\circ}4$ „ 32nd and 33rd days

There were no sequelæ

CASE XIII 29th January 1889 British man-of-war's man, aged 26—*Symptoms previous to admission*—Rigor four days ago, headache and severe backache, sleeplessness Rising temperature, reaching  $104^{\circ}2$  at night Dryness, dry and coated tongue, epigastric distension and tenderness

*Condition on admission* (4th day)—Pale, prostrate, severe frontal headache, and lumbar pain on any movement, exquisitely sensitive over the size of a dollar, with its lower limit 2 inches vertically above umbilicus Tongue moist, covered with white fur No iliac tenderness or gurgling No perceptible enlargement of liver or spleen Heart and lungs normal

*Principal Symptoms during course of Disease*—Prostration and mental depression were marked throughout The pupils were constantly dilated, generally insensitive, with one or two intervals, they did not become permanently normal until the 42nd day There was subsultus for three or four days after the 8th day, and a severe paroxysm of general muscular trembling on the 31st day Headache, chiefly referred to the back of the orbits, was severe, there was no spinal or muscular pain, but for eight days there was an extremely sensitive spot in the epigastric region The patient was never deaf Sleep was variable, sometimes sound, but generally for the first fortnight, and afterwards during successive days of high temperature, disturbed and obtained with the eyes half open The pulse became dicrotic on the 7th day, and so continued until final convalescence Respiration was paroxysmally oppressed without corresponding alteration in pulse or temperature There never was any cough The tongue was dry, scaly or normal

Food was taken freely throughout. There were frequent and heavy sweats, which were always followed by a fall in the temperature. No rose rash was observed. The stools were always fetid, generally characteristic, occasionally bilious and loose or containing lumps. From time to time colic was severe. There was never any marked tympanites. The course of the temperature would suggest a relapsing form, but inasmuch as the general symptoms were not affected in their course by any fall of bodily heat, such an assumption would not be justified. The case must be regarded as one out of many illustrations of the doctrine that the essential character, whatever it may be, of enteric fever is not necessarily linked to the usually elevated temperature. Thus—

From 3rd to 14th day	Max, 104° 2 on 3rd day	Min, 98° 4 on 14th day
„ 15th „ 31st „	„ 101° „ 15th and 17th days	„ 98° „ forenoons of 22nd to 31st days
„ 32nd „ 43rd „	„ 103° 6 „ 34th day	„ 98° 4 „ 32nd day
„ 44th „ 56th „	„ 99° 8 „ 48th „	„ 96° „ 49th and 52nd days
„ 57th „ 71st „	„ 102° 8 „ 60th „	„ 97° 5 „ 71st day

There were no sequelæ beyond intense pain of cramping character in the calves and front of thighs, which persisted for about 10 days.

CASE XIV 9th March 1889 Child of European resident, aged 10—*Early Symptoms*—Pungent skin, congestion of pharynx, cough, anorexia, white tongue, grinding of teeth. Worms had been suspected, but none were expelled after a couple of doses of santonine.

*Condition when first seen* (4th day)—As just described. There was no lachrymation, coryza or eruption, no headache or backache. Tongue dry and brown. Heart and lungs healthy. No splenic enlargement.

*Prominent Symptoms during course of Disease*—Intense prostration and rapid wasting. Delirium occurred on the 11th day, it was generally quiet, sometimes muttering, once or twice violent. After the 10th day speech was very slow, and the child had evidently much difficulty in collecting and expressing his thoughts. There was a short fit of complete unconsciousness on the 16th day, and a violent rigor on the 20th day. Vertigo was complained of on the 10th day, and continued on and off until the 15th day, after which listlessness was so pronounced that no complaint was ever made of anything. Deafness came on on the 11th day, and rapidly became intense, it did not entirely disappear until many days after convalescence had been established. The pupils were dilated and insensitve on the 11th day, and so continued for some time after recovery. There did not appear to be any headache or backache, but there was marked intolerance of light, and as the fever disappeared there was severe cramping pain, in the calves chiefly, which lasted for several days. On the 7th and 8th days bitter complaint was made of midsternal pain and tenderness, for which no cause could be discovered. The supposition of a commencing periostitis had to be abandoned as the pain disappeared spontaneously after 48 hours. Sleep was usually good, with occasional prolonged fits of restless drowsiness, the child's eyes were generally closed during sleep. The pulse was never dicrotic, but was extremely weak and frequent, from the 8th to the 21st day it varied between 120 and 136. Respiration was rapid and shallow, ranging from 36 to 52 between the 11th and 19th days. When the fever was at its worst the character of the respiration was curious: there was a short shallow inspiration, instantly followed by a short superficial expiration, and then a long pause. Cough was not continuous, but was every now and then troublesome, sometimes hard, generally loose, and accompanied by large bronchial râles. The tongue was sometimes brown and dry, sometimes white and moist, never fissured. It became tremulous, and the child could not protrude it on the 12th and following days, and it was noticed on the 14th day to be flabby, yielding and falling back before the thermometer. The pharynx was congested for many days, so much congested on the 20th day as to cause a certain amount of dysphagia. The lips became covered with sores on the 9th day, and speedily cracked. There was never any urgent thirst. Food was taken freely, except for a day or two when the condition of the throat was an obstacle. Profuse sweating was of frequent occurrence, on only one occasion (20th day) did it appear to influence the tem-

perature Rose-rash appeared on the 11th day, and crops of sudamina succeeded one another after the 17th day. Severe vomiting occurred twice (18th and 20th days), on each occasion it was induced by a violent coughing fit and was accompanied by a copious evacuation of bronchial mucus. The stools were infrequent, never fetid, they were usually typical, with occasional hard lumps. For the first twelve days the urine was loaded with lithates, afterwards it was clear and copious. Tympanites was present after the 10th day, and was sometimes distressing, neither tenderness nor gurgling was at any time noted in the right iliac fossa. It was noticeable in this case that the general symptoms closely followed the course of the temperature.

4th to 9th day	Max, 105° 4 on 6th day	Min, 103° 5 on 9th day
10th „ 14th „	„ 105° 2 „ 12th „	„ 101° 3 „ 13th „
15th „ 19th „	„ 103° 7 „ 19th „	„ 97° 5 „ 15th „
20th day	„ 97° 7 at 3 P M	„ 95° at 1 30 A M
21st to 23rd day	„ 102° 2 on 21st day	„ 97° on 22nd day
24th „ 31st „	„ 99° „ 30th „	„ 95° „ 25th „

CASE XV 27th March 1889 Child of European resident, aged 15 — *Early Symptoms* — Evening rigors, with severe headache, which has become continuous. Sleeplessness. Congestion of pharynx. Constipation.

*Condition when first seen* (7th day) — Tongue dry, conjunctivæ injected, pungent skin, abdominal distension and tenderness, loaded urine. Stools, the effect of castor oil, yellow and extremely offensive.

*Prominent Symptoms during course of Disease* — In this case there was a total absence of purely nervous symptoms. There was no increase in the area of hepatic or of splenic dulness. There was no eruption. On the other hand, tympanites became marked on the 8th day, and became excessive, being notably greater to the right of the middle line (a phenomenon unique in my experience). There was excessive iliac tenderness, and distinct gurgling independent of diarrhoea. The stools were variable in number and quality, sometimes infrequent, almost always characteristic, occasionally hard. The tongue too was variable, generally moist, once or twice brown and hard, frequently normal. The back of the pharynx and pillars were considerably congested. Sweating was profuse, and in the intervals there was a peculiar pungency of the skin altogether out of correspondence with the mouth temperature, which never rose above 102° 6 (8th day), continued over 100° to the 20th day, and then fell permanently to normal. The pulse was often found at 65, or thereabouts, of the lingering character previously described.

CASE XVI 28th March 1889 Englishman, aged 28 — *Symptoms previous to admission* — Intense malaise for six days, sleeplessness, nightly headache, abdominal pain, vomiting after food, stools infrequent, loose, dark-brown and white mixed. Urine porter-like. Patient is a total abstainer.

*Condition on admission* (7th day) — Tongue moist, white, conjunctivæ yellow, skin yellow, puffy, not exactly œdematous, sweating heavily. Pulse 144, very soft. Temperature 103° 8. Urgent thirst. Slight downward enlargement of left lobe of liver, but no tenderness. No gurgling, but slight sensibility in right iliac fossa. No spots. Nothing to be discovered as regards heart, lungs or spleen. Urine loaded with lithates and with the colouring matter of the bile, no albumen. Patient extremely prostrate and irritable.

*Prominent Symptoms during course of Disease* — There was no delirium at any time, but prostration was intense throughout. Towards the end of the second week there was much subsultus and large muscular trembling. The pupils were dilated and insensitve, and there was severe frontal headache until convalescence was fully established. A severe rigor occurred on the 12th day, after which the temperature fell to 95°, but rapidly rose to 103°. Deafness was observed from the 8th day. There was occasional sleeplessness, but as a rule a fair quantity of sleep was obtained, generally, however, much disturbed by terrifying dreams. The pulse after admission was never extremely rapid, it was always compressible, and fell to 60 for several hours on the 9th and 11th days. There was never any cough, but occasionally, without obvious cause, fugitive attacks of dyspnoea occurred. The tongue was variable, sometimes normal, sometimes white or

brown, once or twice dry The back of the pharynx and pillars were congested, and once or twice there was some pain in swallowing There was marked disgust for food, succeeded by voracity about the 28th day There was constant and profuse sweating The skin was canary yellow during most of the illness, clearing for a day or two at a time, but not losing its coloration finally until the 28th day The urine was porter like for a few days longer There was no rose rash, no gurgling, tympanites was slight and occasional Up to the 34th day there was frequent bilious vomiting, with once or twice slight hæmatemesis, due apparently to straining The stools were generally characteristic, now and then olive green and oily, like washings of meat on the 38th day (after intestinal hæmorrhage) Dysuria occasioned much distress on the 8th and 9th days, its cause was obscure Severe hæmorrhage occurred on the 38th day, after indulgence in dried fruit which had been surreptitiously brought to him The bleeding recurred to a slight extent on the 39th day How irregular the temperature curve was will be seen by the following table —

7th day	Max, 103° 8 at 9 P M	Min, 101° 7 at 8 A M
8th "	" 99° 4 " 8 A M "	" 96° " 4 P M
9th to 20th day	" 104° 6 on 13th night	" 95° on 12th morning
Temperatures normal or subnormal in early morning		
21st to 30th day	Max, 103° on 28th evening	Min, 97° 8 on 21st morning
31st " 39th "	" 104° 4 " 37th "	" 96° 6 " 31st "
After the 39th day the temperatures were normal or subnormal		

Although not belonging to the period under review, I will, in order to complete these illustrations of enteric fever as seen in Shanghai, refer to or report a few other cases which presented some peculiarities worthy of notice

Enteric fever, though announcing itself in the most stormy manner, may run a benign and rapid course towards recovery

CASE I—An Englishman, aged 24, who had frequently suffered from malarious fever in different southern ports Seen on the 4th day of an illness contracted up country, which had begun with violent headache, prostration, sleeplessness, loss of appetite, and dry loaded tongue No rigor and no sweating Had been largely dosed with quinine Subdelirium on the 31d night

When seen, in early morning, the temperature was 103° 8, it rose to 104° 8 about 9 P M The abdomen was distended, very sensitive, no gurgling could be made out The spleen could be distinctly felt, and palpation was painful No ascertainable liver enlargement Bowels constipated, relieved of extremely fetid stuff by enema After this the stools were liquid, yellow with considerable deposit Tongue very dry and hard in centre with thin brown fur, edges red Skin yellow Pulse 90, remarkably soft Cardiac action extremely weak and occasionally intermittent Next morning (5th day) the pharynx was deeply congested, there was slight dysphagia Cough with mucilaginous frothy expectoration Sleeplessness, delirium, increased tympanites and tenderness Temperature in morning 103°, at night 104° The symptoms then began to abate, and by the 8th day convalescence was established

CASE II—Dane, aged 35 Several attacks of malarious fever Illness began with rigor, heat and sweating after a severe drenching Dosed himself with antipyrine, quinine and purgatives Had fever every day from beginning, and noticed little difference in its intensity at different hours Sleepless, no delirium Intense frontal headache on 5th day, which persisted without intermission through the following night Urgent thirst Drinking large quantities of milk

When seen on the 6th morning, his skin was dry and a dirty yellow, there was much subsultus on attempting to grasp an object, the tongue was dry, there was no incoherence The temperature was 104° 6, it rose to 105° 7 at noon, and to 106° 2 at night Respiration 30 (48 at night), superficial, nothing discoverable in chest On the 7th day the stools were frequent and characteristic The temperature remained elevated, and the other symptoms but little changed until the 9th day, when convalescence suddenly set in On the evening of the 8th day, after the temperature had been high for several days,

and had indicated on at least one day what might be called hyperpyrexia, there was a very marked accentuation of the second sound in the tricuspid area, the more remarkable as the other cardiac sounds were feeble and distant. This had disappeared when the heart was re-examined two days later. On the 8th and 9th days slight fugitive ecchymoses appeared on the arms. These vanished after a couple of hours, but only to appear again, hardly ever in the same place. The change of position was ascertained by surrounding each patch with ink. Iliac gurgling was distinct on the 7th day. On the afternoon of the 9th day there was a long and profuse sweat, after which every symptom, except intense weakness, at once disappeared.

In this case EHRLICH'S test gave no reaction. On adding the ammonia to the shaken-up liquid in the test tube an opalescent ring was formed. After 24 hours there was a slight violet or purple deposit.

CASE III—Englishman, aged 25. Three days ill with prostration, headache, sleeplessness, foul tongue, loss of appetite. Thinks he is delirious at night. Temperature on 4th morning  $104^{\circ}$ , in evening  $104^{\circ}5$ . Abdomen tympanitic. Characteristic stools (four). No spots, tenderness or gurgling. Deafness and stupor on 6th day, temperature varying between  $102^{\circ}$  and  $104^{\circ}$ . Pulse 100 to 110, dicrotic, pupils dilated. Delirious, violent at night until the 8th day. Typhoid stools until the 11th day, when convalescence set in.

It is but seldom that we come across the "ambulatory typhoid" in which a patient goes through the entire, or nearly the entire, course of his fever without suspecting that there is anything wrong with him. The following histories describe conditions approaching this—

CASE I—Mercantile assistant, aged 29. Accidentally observed in his office, where he had been working in the usual way for the usual number of hours daily. He looked extremely ill, but said that beyond sleeplessness there was nothing the matter with him. Sent to bed. Temperature at noon  $104^{\circ}$ . Stools liquid, frequent, black from iron which he had been taking freely on his own account. Three rose coloured spots on abdomen, much tenderness, distinct gurgling, tympanites. At night temperature  $102^{\circ}4$ , wandering. Tongue dry, yellow, red tip and edges. Spots continued to come out, and the fever followed the course usual in the third and fourth weeks. Convalescence was established on the 12th day after treatment began. When, after five days, the stools lost their black colouration they were seen to be typical.

In this case sudden death might have occurred. The circulation was feeble and intermittent when the patient was first seen, and on the following day he had a paroxysm of cardiac failure with dyspnoea, extremely rapid incomplete cardiac contraction, pallor and cold sweat, which would probably have terminated fatally had it come on while he was sitting at his desk.

CASE II—A lady recently arrived in Shanghai, phthisical family history on both sides. Shortly after her arrival she went on a long sea trip, in the course of which she caught cold. This was speedily followed by "break bone pains," occasional vomiting, yellow diarrhoea, sore throat, distension and tenderness of the abdomen. Her skin was always hot, often pungent, she slept badly, and talked in her sleep. Complete anorexia. After 10 or 12 days, frequent starting of the muscles of the limbs was observed. Meanwhile she went about at each port that she visited, inspected curio shops, and took much exercise. She swallowed a great deal of quinine.

On her return to Shanghai, probably about the 18th day of her illness, her tongue was dry and untable, all the papillae largely developed. Her gums were spongy. There were a number of minute herpetic ulcers on the mucous membrane of the lips. Her skin was dirty-yellow, lips pale. The abdomen was slightly distended, uniformly sensitive. Severe cough, with frothy tenacious expectoration. The temperature was  $101^{\circ}$  (7 A.M.), and rose to  $104^{\circ}3$  at night. For 12 days a fever temperature was maintained, after which convalescence was established. The morning temperatures ranged between  $100^{\circ}$  and  $103^{\circ}5$  for 11 days, and the night temperatures between  $101^{\circ}4$  and  $105^{\circ}2$ . The stools were characteristic, and all the symptoms indicative of the third and fourth weeks of ordinary enteric fever. It



may be noted that the catamenia appeared normally during the second week, and that they reappeared a fortnight after convalescence. A tendency to diag on with slightly elevated night temperature ( $100^{\circ}$ ) was speedily checked by the administration of quinine.

True relapse of enteric fever, by which I mean a fresh outburst some weeks after complete convalescence, is, so far as my experience goes, one of the rarest events here. The patient whose case has just been mentioned offered an instance of it.

*Enteric Fever Relapse after six weeks Recovery*—Forty-two days after the last record of a fever temperature she began to experience loss of appetite, rapidly increasing weakness, sleeplessness and diarrhoea. This lasted for five days, and I saw her on the 6th day. Her morning temperature was  $102^{\circ} 5$ , evening temperature  $104^{\circ}$ . Stools nearly watery, yellow, fetid. Tongue normal. Abdomen distended. Slight tenderness to percussion in hepatic region. Distinct gurgling. The temperature ran as follows (falling at night for three days) —

6th to 10th day	Morning range	$102^{\circ} 3$ to $103^{\circ} 7$	Evening range	$103^{\circ} 4$ to $104^{\circ} 4$
11th „ 13th „	„ „	$100^{\circ} 8$ „ $102^{\circ} 8$	„ „	$103^{\circ} 8$ „ $104^{\circ} 1$
14th day	Morning temperature	$103^{\circ} 5$	Evening temperature	$102^{\circ} 8$
15th „	„ „	$102^{\circ} 4$	„ „	$98^{\circ} 2$
16th „	„ „	$101^{\circ} 5$	„ „	$100^{\circ} 9$
17th to 22nd day	Morning range	$98^{\circ} 4$ to $99^{\circ} 8$	Evening range	$98^{\circ} 4$ to $101^{\circ} 1$

The course of the relapse was thus exactly three weeks. The patient was deaf and occasionally delirious. Dilated pupils throughout. Two rose spots were discovered on the 10th day. All through there was excessive perspiration. The tongue varied from normal to extreme dryness. The catamenia lasted from the 3rd day of the fever to the 13th. Diarrhoea was characteristic. There was intense prostration, congested pharynx, cough, headache, horrible visions. Convalescence was established at the end of the third week.

The chronic “seediness” which is occasionally the reward of habitual drinking may mark the onset of enteric fever, loss of appetite, sleeplessness, horrible visions, foul tongue, thrust and deranged bowels, with perhaps mucous or bilious vomiting, being regarded as natural incidents, and giving rise to no suspicion of their special significance.

CASE I.—Clerk, aged 22. Shivering and one distinct rigor, intense headache, sleeplessness, “dreamy states,” paroxysmal sweats, excessive bladder irritability, anorexia, urgent thirst. Bowels irregular for several days. Stools now liquid, yellow, fetid, frequent. Had been drinking and otherwise dissipating for a fortnight or three weeks, and had lost his employment in consequence. He attributed all his symptoms to his imprudences, and sought advice because he thought that he was about to have an attack of delirium tremens. On what I assumed to be the 8th day of his illness, I found the hepatic and splenic regions hypersensitive, the liver extending downwards for an inch below the costal arch, and the left lobe specially painful to percussion. The spleen could be distinctly felt, but the increase in its size was not great. Tongue white, dry, red tip and edges. Pulse, small and soft, 104. Temperature at 2 P.M.  $103^{\circ}$ . Cough with mucilaginous expectoration, respirations 24. Distinct tenderness and gurgling in the caecal region. No spots. Sent to hospital.

The disease proved severe. Spots appeared on the 11th day. The most distressing symptom was intense frontal headache with photophobia, which persisted until the middle of the third week. All through the disease the patient was very tremulous, after the 16th day he was stupid, and on the 40th day he became deaf. He did not become distinctly delirious until the 43rd day, he was muttering on the 44th day, with much subsultus, inclined to be violent on the 45th day. After this he did not wander. His pupils were dilated and insensitve from first to last. Sweating was profuse, there was one severe and prolonged rigor on the 11th day. The temperature was rarely under  $102^{\circ}$ , and often approached

105°, until the 36th evening, when it reached 105° 1, it then gradually fell, and first reached normal on the 48th day. There were occasional paroxysms of bladder irritability. Tympanites was never very marked. The stools were characteristic. Among many serious complications was ulceration of the pillars, soft palate and back of the pharynx, which made its appearance on the 10th day, and slowly spread over the hard palate, superficial sloughs being thrown off, and profound gangrene seeming imminent for several days. On the 22nd day an abscess was found in the scrotum at the root of the penis. This was incised and dressed antiseptically, but a deep slough formed, and the urethra was seriously threatened. Intestinal hæmorrhage occurred on the 22nd, 23rd and 24th days, about 60 ounces of blood, liquid and coagulated, being lost. Recovery however was complete, and there were no sequelæ.

CASE II—Fienchman, aged 23, clerk. Similar history of constant delirium. Sleeplessness, horrible dreams, anorexia, fetid diarrhoea, all attributed to natural disturbance of health in consequence of drinking. Seen about the 16th day. Intense prostration, rose spots, tympanites, deafness, stupidity, night delirium, typical diarrhoea. Dicrotic pulse. In this case the course was more benign. The temperature varied round 104° at night, and between 102° and 103° during the day until the 21st day. There was hardly any iliac tenderness, but pressure in the umbilical region was exquisitely painful. This tenderness lasted for a week and then disappeared spontaneously. The stools continued characteristic until the 31st day. There was a severe nasal epistaxis on the 23rd day. Apart from this, no complications. No sequelæ.

Sloughing of the scrotum has been observed in cases of profound malarial intoxication\*. Ulceration ("small, encircled punched-out ulcers, healing rapidly") of the soft palate, rarely of the posterior wall of the pharynx, is given by CAHN of Strassburg (under KUSSMAUL's guidance), as important for the diagnosis of typhoid†. It must very seldom be necessary to have recourse to this symptom for the purpose of strengthening a diagnosis. It is, however, important to note that ulceration of the upper end of the digestive tract may in typhoid prove in itself a source of danger.

In many of the cases detailed I have mentioned the occurrence of a soft systolic bruit, heard equally at the apex and base of the heart, appearing usually about the end of the second week and lasting until convalescence is fully established. I do not purpose here to consider the organic cardiac complications of enteric fever. This subject was exhaustively treated by HAYEM in 1875‡. The bruit to which I refer indicates no valvular mischief, and is doubtless due to toxic interference with the innervation of the heart and degenerative changes in the cardiac muscle, manifesting themselves by irregular contraction. It has, however, given occasion to an erroneous diagnosis.

CASE—*Enteric Fever. Muscular Bruit mistaken for an indication of Pericarditis*—In October 1875 I was in attendance on a Japanese, aged 24, who was passing through an attack of typhoid fever of average severity. The bruit to which I refer, and for which I had been searching, became audible on the 14th day. The patient's friends, probably impressed and made apprehensive by the frequent examination of the heart region, surreptitiously consulted an eccentric practitioner whose career in Shanghai was neither brilliant nor prolonged, but who had I understand passed through the usual training of a large London hospital. He denounced the diagnosis of typhoid fever, pronounced the disease to be pericarditis, and gave a fatal prognosis unless the patient was "at once put on mercury pushed to salivation and a large blister was applied to the præcordia."

Presumptuous ignorance pushed to this extent is fortunately rare. But the story shows that mistake is possible, especially should no sufficient attention be paid to the history of each

\* References in *London Medical Record*, 1886, p. 151.

† *Berliner klinische Wochenschrift*, 1886, p. 217.

‡ *Leçons cliniques sur les manifestations cardiaques de la fièvre typhoïde*.

case Nor is the accurate diagnosis of typhoid fever merely a matter of scientific nicety In the case just related the heroic treatment recommended would in all probability have proved speedily fatal, just as many typhoid cases have undoubtedly died poisoned by quinine, and in later days by antifebrin

Parotid bubo presenting itself as a complication is usually of fatal significance Subcutaneous abscesses in various parts of the body are not infrequent, as is well known, and however long and tiresome the series of such collections may prove they are hardly ever of grave import Even in the rare instances when abscesses, due to the degeneration of ZENKER, form in the substance of muscles, recovery has been the rule\* But MURCHISON† reports losing five cases out of six in which parotid bubo appeared, and quotes TROUSSEAU to the effect that a case scarcely ever recovers when pus forms in the depths of the parotid gland Recovery is certainly very uncommon In recent literature I find but one case so terminating recorded‡

The patient was a boy of 7 years About the 16th day inflammation of the left parotid region declared itself, with gangrene of the skin below the right angle of the mouth Sanious pus evacuated by deep incision six days later Submaxillary bubo of right side terminating in resolution

A case of recovery from sequential "cellulitis of the neck" is reported in the same journal§ From the anatomical description given this would appear to have been a parotid bubo which ended in resolution after division of the fascia over the gland

CASE—*Enteric Fever Bubo in each Parotid Recovery*—A lady, aged 23, recently married Usual series of symptoms Sleeplessness, headache, articular pains, prostration, hurried respiration, slight cough with expectoration of bronchial mucus, pulse soft, rapid, dicrotic, dry loaded tongue, nausea, anorexia, thirst, diarrhoea, abdominal distension, hypersensibility in caecal region, temperature varying between  $102^{\circ}$  in the morning and  $104^{\circ} 6$  at night There was an initial rigour, and paroxysms of sweating were frequent subsequently Deafness was an early symptom (5th day) There was much drowsiness, the patient dozing for hours at a time with her eyes half open Delirium and subsultus on the 6th day When fully awake she complained bitterly of paroxysms of intense pain starting from the shoulders and radiating to her finger-tips, being particularly severe in the elbows The elbows were red, very sensitive to pressure, but there was no effusion into them and motion was free Constant purging of characteristic fluid Occasional epistaxis At the end of the first week the lips were cracked, teeth covered with sordes, face flushed purple, very stupid, breathing superficial and laboured with much expansion of the alae nasi, profuse secretion in the tubes, hardly any cough, right heart overfilled

At this stage, as suffocation appeared imminent, I administered a sulphate of zinc emetic, which brought up an incredible quantity of mucus, and, followed by a large draught of champagne, changed the immediate aspect of affairs In such urgent cases the risk of collapse after the vomiting must be anticipated and faced

After the 10th day the temperature fell, but the nervous symptoms were unabated She was always restless, and the delirium was occasionally wild Her sense of smell became extraordinarily acute Severe occipital pain Great abdominal distension, but very free escape of flatus On the 14th day she was vermin hunting, and a crop of purpuric spots came out on the buttocks Her pulse was now running Cramps of leg muscles Constant shouting, all sorts of fancies as to where she was On the 15th day she complained of severe pain behind the jaw on the left side, and a deep seated hard swelling, very sensitive to pressure, was detected there Her temperature rose next morning to  $103^{\circ} 5$  Left side of neck now brawny A similar swelling forming on the right side

\* For references, see *Progrès Médical*, 1886, p 1067

† *Lancet*, 1879, ii, 909

‡ *The Continued Fevers of Great Britain*, 2nd ed, p 583  
§ *Lancet*, 1889, ii, 998

All this time the stools were frequent and typical. There was no cardiac bruit.

On the 18th day the stools were frequent, fetid and passed unconsciously. On the 19th there was a severe rigor followed by sweating. An exploratory incision under local anaesthesia gave exit, at what appeared to be a considerable depth (the tissues overlying the gland being however much thickened by oedematous infiltration), to about 6 diachms of bloody and curdy pus, with one or two minute sloughs. During the following days, under frequently renewed poultices of very fine orkum freshly carded from new Europe rope and wrung out of boiling water, the skin being protected by a thick layer of boracic ointment, there was a profuse discharge of pus, which speedily assumed a healthy character. Three days after the evacuation of the abscess on the left side deep fluctuation was detected in the right psoitic swelling. This was incised and similarly treated, the pus from this second abscess being creamy. By the 38th day the incisions had closed, and convalescence was established.

In a long experience of enteric fever the case just summarised was the most menacing that I have ever known to terminate in recovery.

Among the rare sequelæ of enteric fever are affections of the eye. MURCHISON casually mentions sloughing of the cornea, attributing it to arterial thrombosis. In the following case ulceration was probably merely a local sign of general malnutrition.

*Enteric Fever. Marginal Corneal Ulcers. Recovery.*—A Chinese dyer, aged 39. For a fortnight had had frequent, liquid, yellow, generally fetid stools, red, baked tongue, pungent heat of skin, wasting, muscular weakness, sleeplessness, stupor and night delirium. There had been no rigor or sweating.

On admission the tongue was raw, furred, dry. Intense headache, photophobia, insensitive and slightly dilated pupils. Two rose spots on abdomen. Stools frequent, typical. Abdomen swollen, marked tenderness in caecal region. Pulse rapid, feeble, dicrotic with occasional intermittences. Suitable nourishment rapidly improved the condition. On the 26th day a small ulcer was observed at the outer edge of the left cornea, followed by three more a few days later. All four healed slowly, and the eye had not completely recovered until three weeks after the appearance of the first ulcer.

That enteric fever may run its course, and even a severe course, with very slight elevation of temperature or with none at all is well known. Cases of this kind are, however, rare. A more important observation is that in the course of an attack the temperature curve may vary between very wide limits while the general symptoms show no improvement in correspondence with the lower readings of the thermometer.

*Enteric Fever. Moderate or normal Temperatures. Severe Symptoms. Recovery.*—A Japanese, aged 24. Ill five days when first seen. The usual group of symptoms was present. Up to the 14th day the temperature never reached 104°, and was rarely over 102°. The highest reading for the 24 hours was in this case, as in most others, always registered about 6 P.M., the descent for the night beginning between 6 P.M. and 9 P.M. After the 14th day the temperature was normal or subnormal. But the patient was for nearly three weeks perfectly deaf and either stupid and indifferent or wildly delirious, he hardly ever slept, his stools were indescribably fetid, and his abdomen enormously distended. The bases of both lungs were solid for 10 days. He refused wine and was fed only with the utmost difficulty. On the 28th day, when the temperature had already been normal or slightly below normal for a fortnight, convalescence suddenly set in, without however any critical phenomenon, and recovery was speedy.

In several cases of enteric fever occurring among females, detailed in this and previous Reports, it has been incidentally noted that the catamenia are not arrested or materially affected by even the severest forms of the disease. In one case where the attack came on during the period of lactation and nursing was continued (against advice), the child appeared sufficiently

nourished and certainly received no injury The following case shows that pregnancy at an early stage is not necessarily disturbed by enteric fever —

*Enteric Fever End of second month of Pregnancy Pregnancy undisturbed*—Patient had suffered severely from Tamsui fever When seen her temperature for several days had not been below  $101^{\circ}$  Vomiting, anorexia, foul tongue, dry pungent skin, headache, lumbar and joint pain, sleeplessness Temperature (afternoon)  $103^{\circ} 5$  This was supposed to be the 5th day Diarrhoea, yellow and flocculent, occurred on the 7th day, and persisted Muscular pains of extraordinary severity formed the most distressing symptom There was but slight tympanites, no spots, but there were distinct tenderness and gurgling in the caecal region The highest morning temperature recorded was  $102^{\circ} 4$  on the 8th day, and the highest evening temperature was  $103^{\circ}$  on the 7th day The temperature did not fall to normal until the 27th day At this time pregnancy was not suspected The catamenia had been absent for two months, but as they had frequently been irregular on previous occasions no particular attention was paid and the fact was not mentioned However, 230 days from the beginning of the fever a mature child was born Pregnancy therefore dated from 50 days before the patient fell ill

It would naturally be supposed that enteric fever attacking a person already advanced in phthisis would run a severe and probably fatal course This, however, has not been my experience In fact all the cases which have come under my care with this combination have by a singular chance terminated favourably

CASE I—*Enteric Fever, occurring during the third stage of Phthisis Intestinal Haemorrhage Recovery*—Patient (female, English, aged 28) seen 20th October 1875, on what was supposed to be the 8th day of her illness She is a fragile woman, with salient cheek bones, flushed cheeks, fair hair and complexion, ill-formed teeth, sunken chest, atrophied mammae, clubbed finger-tips Has had two children, both alive but delicate, one four years old, the other two years She nursed each for only a few weeks, when her milk failed without any breast trouble Five years ago she had severe hæmoptysis, which lasted for a month, and was followed by a long period of purulent expectoration She recalls rather indistinctly a similar sequence of events several years before, when she was a child Ever since the last attack of hæmoptysis she has coughed, expectorated purulent lumps, and sweated at night She has very slowly wasted, losing a few pounds every year The catamenia since the birth of her last child have been irregular as to quantity, regular as to recurrence Anorexia Constipation

Her father and one sister died of phthisis at an early age

Her present illness began about a week ago with constant high fever, quiet night delirium, and almost absolute sleeplessness She speedily became extremely prostrate Excruciating frontal headache, photophobia Lightly tapping the head anywhere exasperates the headache Pupils dilated, sensibility to light apparently diminished (only a very dim light could be used) She has a short hacking cough, and profuse yellow, frothy, fetid diarrhoea, which came on after a seidlitz powder taken two days ago This afternoon (8th day) there was a profuse discharge of bloody fluid from the bowel She is constantly retching

There is no uterine trouble The heart is apparently healthy as regards the valves, but there is a faint muscular bruit at the apex and base The pulse is distinctly dicrotic The liver and spleen are of normal size, and neither is tender on palpation Marked tenderness and gurgling in the right iliac fossa, and the supra-pubic region is also very sensitive

The lungs are uniformly dull in front There is a deep depression under the left clavicle The chest hardly expands in the least on the deepest inspiration Respiration being almost exclusively abdominal causes so much distress that it is voluntarily slowed Percussion is clear behind on the right side, between the scapula and the spine Respiration is puerile over the upper part of the right back,

tubular elsewhere. Posteriorly the whole left chest is wooden, except over a small area corresponding to the spine of the scapula, here there is gurgling.

The heart sounds are not audible in the right back, but are intensified in the left axilla. True vesicular murmur is not to be found anywhere. Respiration is tubular over the greater part of both fronts, with small scattered areas of absolute silence.

In spite of this unfavourable condition the fever ran an average course. Prostration was extreme. The temperature rose to  $105^{\circ} 8$  on the 10th night, and was  $104^{\circ}$  on several mornings, but there was generally a daily interval between 10 A.M. and 2 P.M., when it fell to about  $100^{\circ}$ . Delirium was occasionally violent, with very severe headache. Dysuria was distressing from the 11th to the 13th day. On the 10th day continual twitching of the lower facial muscles on both sides was observed. This ceased on the 12th day. Rose spots appeared in successive crops after the 12th day. On this day also the catamenia appeared (due date), and lasted until the 15th day, the discharge containing several black clots. The temperature fell to normal on the 26th day, and did not again rise. A fortnight later it is noted that the myocardial bruit had almost disappeared. The condition of the chest was unaltered. Patient was eating and sleeping well.

CASE II—*Enteric Fever in course of Phthisis Syphilis Intestinal Haemorrhage Pneumonia Recovery*—Marine engineer, aged 28. Patient comes of a phthisical family. In June 1884 for the first time spat blood, and ever since has been much troubled by cough with mucopurulent expectoration. He sweats much in the early morning. He is gradually but very slowly losing weight. There is consolidation at both apices. In August 1884 he contracted syphilis, followed in November by a roseolar eruption, which was accompanied (at another point) by an attack of "typho-malarial fever" which laid him up for two weeks. Apart from the eruption just mentioned, he has had no constitutional symptoms of syphilis.

Seen 19th March 1885, supposed to be the 6th day of an illness characterised by sleeplessness, severe headache, pungent skin, intense prostration, white tongue with red dry tip and edges, meteorism, abdominal sensitiveness, not localised, and yellow, slimy, fetid diarrhoea. The temperature ran high— $103^{\circ} 4$  on the 12th morning,  $105^{\circ}$  on the 11th evening. It averaged  $102^{\circ}$  in the morning and  $104^{\circ}$  at night for the first 17 days, when there was a sudden fall to normal, which persisted until the 21st day, accompanied by remission of all the symptoms. Severe intestinal hæmorrhage on the 8th day, controlled by sulphuric lemonade. Bleeding did not recur. The pulse and temperature were alike unaffected by the hæmorrhage, the pulse being throughout full, soft and under 100 in frequency. The stools were characteristic, there was much quiet delirium, spots appeared on the 12th day. On this day also there was a slight discharge of pus from the umbilicus, the source of which was obscure. Tympanites was distressing, but abdominal tenderness disappeared early. On the 11th day the tongue and muscles of the limbs became tremulous. On the 10th day the patient was troubled with cough, and expectorated some frothy mucus streaked with blood. Previous to this day and after it until the 21st the lung symptoms appeared to be in abeyance.

On the 21st day, when everything promised speedy convalescence, dyspnoea came on suddenly, with livid lips, scanty, blood-stained expectoration, and dry tongue. The base of the right lung up to the angle of the scapula was absolutely dull. Breathing tubular, no respiratory murmur. Respiration 36, pulse 120, temperature  $104^{\circ}$ , about which it remained for seven days, rising to  $105^{\circ} 2$  on the 31st night. On the 2nd day of the pneumonia a very large quantity of bile was vomited, with notable relief to the breathing. There was now slight splenic enlargement and tenderness, but no notable enlargement of the liver. The expectoration was characteristic. On the 8th day the lung had cleared, and from this out (28th day of the illness) convalescence was uninterrupted except by violent cramps in the left calf muscles, which persisted from the 37th to the 39th day.

The complication with pneumonia is tolerably frequent, but not specially fatal. It was menacing in the case just detailed, but rather on account of the phthisical and syphilitic history of the patient.

*Enteric Fever Pneumonia Severe nervous symptoms Recovery*—Englishman, clerk, aged 32. Ailing for about 10 days. Sleepless, severe vertical headache, muscular pains, prostration, anorexia, brown baked tongue with red tip and edges, frequent bilious vomiting, yellow diarrhoea. For the last four days the stools have contained blood. Coughing.

Seen 2nd January 1876, assumed to be the 10th day of the illness. At the base of the right lung is an area about the size of the palm of the hand absolutely dull. It is with difficulty that the patient can be got to draw a long breath, when he does crepitation is audible. In the centre of the patch crepitation is coarse, finer towards the margins. At the edge of the dull area respiration is tubular. Marked immobility of right side. Patient cannot lie on the left. Sputa rusty.

Half a dozen rose spots round umbilicus. Gurgling and tenderness in right iliac fossa. Tongue as above described. Pupils medium, sluggish. Much muscular tremor. Respirations 40, pulse 100, temperature (4 P.M.)  $103^{\circ}$ .

The pneumonia was severe. Respiration varied between 40 and 50, pulse between 100 and 130 (on the 16th, 17th and 19th mornings falling to 84, 96 and 96 respectively, the corresponding breathing rates being 46, 40 and 48), temperature between  $100^{\circ}$  and  $103^{\circ}8$  in the morning, and between  $101^{\circ}$  and  $105^{\circ}$  at night. On the 16th and 22nd mornings the temperature fell for a couple of hours to normal, without any corresponding general improvement. Paroxysms of sweating were severe and frequent. On the 12th day about 2 ounces of pure blood was expectorated, and it is noted on the same day that the stools were like "meat-washings." Delirium, muttering, subsultus and indifference from the 13th day, fly-catching on the 21st day, when also he had a prolonged rigor. Pulse hyperciclotic. On the 15th day it is noted "Base of right lung completely solid, unconscious of dyspnoea, pupils widely dilated and "insensitive, muttering delirium during semi-sleep, very distinct myocardial bruit."

Meanwhile the enteric fever pursued its course. The stools were frequent and characteristic, there was distinct gurgling on palpation in the caecal region, whether there was tenderness or not could not be ascertained. On the 17th day the following note was taken "Is constantly drowsy, but can hardly be said to sleep. Constant starting of legs. A touch on either sole causes a jump as though a shock from a battery had been given." A fresh crop of rose spots came out on the 18th day, the former having faded. There was great abdominal distension. The heart's action became extremely feeble towards the end of the third week. On the 23rd day crepitation was again audible, and on this day there was a considerable loss of blood from the nose. After this all the symptoms abated. Delirium persisted to the 30th day, but by the 32nd day convalescence was established.

The following case is a purely typical one, occurring in a young subject recently arrived, advancing without complication, but with almost every ordinary symptom, to a favourable issue at the end of the third week. It represents the natural course of the disease when the patient is placed amid favourable surroundings, for, after stopping quinine, treatment was limited to a carefully regulated diet, sponging with tepid water and vinegar, the administration of a few chlorate of potassium lozenges, and an occasional enema.

*Enteric Fever Natural course Recovery*—A young English girl, aged  $15\frac{1}{2}$ , recently arrived in Shanghai. Ailing for a week with sleeplessness, articular and muscular pain, "stitch" in left side of chest, frontal headache, intolerance of light, anorexia, foul tongue, yellow diarrhoea, sore throat, pungent skin. She had been delirious during the night previous to summoning advice. Had had 10 grains of quinine every day, administered in amateur fashion.

Seen 8th May 1885, supposed to be the 8th day of the disease. The morning temperature was  $102^{\circ}$ , afternoon,  $104^{\circ} 5$ , evening,  $105^{\circ}$ . Face flushed. Spleen tender, could just be felt on deep palpation. No hepatic enlargement or tenderness. Heart healthy. A few disseminated moist râles over posterior surface of both lungs. Tongue brown, moist. No spots. Slight gurgling in cæcal region, no marked tenderness. Pillars and back of pharynx much congested, on each side behind the posterior pillar there is a raised congested patch, only a part of which is visible, which appears to be the main cause of the throat trouble. Stools characteristic.

There was great prostration throughout. A very faint myocardial bruit was audible from the 10th day to the establishment of convalescence. The pulse was soft and lingering, varying in frequency from 78 to 100, diastolic after the 12th day. Patient was delirious from the 10th to the 20th day, very deaf and stupid from the 10th day onward. The pupils were dilated but sensitive after the 12th day. From the 16th to the 19th day there was general muscular tremor, with subsultus from the 18th to the 21st day. There was no rigor. Sleep was variable, but a fair amount was obtained, mostly disturbed by visions. Cough was troublesome for a few days, on the 10th she expectorated some blood-stained mucus with marked relief, and on the 12th day she had a paroxysm of hurried breathing without dyspnoea, lasting for a couple of hours, during which the respiration rose to 40. There was nothing discoverable in the lungs beyond slight bronchial catarrh to account for these symptoms. The condition of the tongue varied, it was sometimes brown and dry, occasionally normal. The lips were cracked, and sores collected on the teeth on the 11th day. On the 10th day an ulcer appeared on the congested patch on the left side of the pharynx and spread for two days, causing some dysphagia. It had healed by the 17th day, and the patches disappeared shortly afterwards. Thirst was urgent. There was complete anorexia until the 15th day, when appetite began to return. Paroxysms of sweating were frequent. The eruption appeared in two crops, on the 10th and 13th days respectively. From the 11th day out the skin was covered with sudamina. The stools were characteristic up to the 17th day, horribly fetid, but occasionally solid between the 11th and 18th days. No intestinal hæmorrhage. There was slight tympanites, which first declared itself on the 10th day. On the 14th day the abdomen was rather excavated. There was no vomiting, splenic tenderness persisted to the end of the illness, and once or twice slight hepatic sensitiveness was complained of under percussion. There was no ascertainable enlargement of the liver. Gurgling was present from the first in the cæcal region, and from the 10th day onward there was some sensitiveness. Her hair began to fall out on the 11th day, and had become very thin before the illness terminated, six months later it had grown luxuriantly. For a week after convalescence was established she suffered severely from aching in the soles of her feet and cramping pains in the joints of her fingers and toes. After her recovery her memory was a complete blank with regard to the earlier and middle periods of her illness. The following abstract indicates the range and course of the temperature —

8th to 15th day —Max,  $105^{\circ}$  on 8th morning and 11th forenoon, min,  $100^{\circ} 2$  on 15th morning. The temperature was generally close to  $104^{\circ}$  between 11 A.M. and 3 P.M.

16th to 19th day —Max,  $103^{\circ}$  on 18th afternoon, min,  $98^{\circ} 4$  at 11 A.M. on 16th day. During this period there was a fall of one or two degrees at night.

20th day —Max,  $103^{\circ} 4$  in the afternoon, after a saline lavative, which stirred up and brought away a quantity of putrid feces. Temperature normal all through forenoon and at night.

After the 22nd day the temperature remained permanently normal.

So far as my experience goes, enteric fever is rare in young children. I hear of many cases, just as I hear of many cases of diphtheria and of spue, terminating of course in recovery, but I see hardly any. Malarious fevers, fever from indigestion, from worms, from exposure to heat, occasionally fever of purely nervous character, are all common enough among children, and no doubt explain many marvellous recoveries from typhoid within a week or 10 days. But when genuine typhoid does attack a young child and runs its normal course of three or four



weeks, it often leaves after it a condition of deep anaemia with dyspepsia, bowel irregularity, fetid stools, and a tendency to moderately high temperature towards evening, which last almost indefinitely. Here quinine, or quinine with arsenic, alcohol and gentle saline purgatives, with frequent sponging with hot diluted vinegar, are more effectual than even change of air, which often completely fails to restore health. Iron is, I think, seldom of any use and is often injurious.

CASE.—A girl, aged 7, recently arrived from England. Had had a three weeks' illness at another port, diagnosed as "typho malarial fever." The symptoms described clearly indicated typhoid. She had lost 8 lbs during her illness. After a fortnight's change to Chefoo she was brought to Shanghai. Her lips and gums were pale, conjunctivæ pearly, finger nails dark, she was made breathless by slight exertion, and complained of much cardiac distress. Her pulse was 132. She slept badly. Her stools were frequent, sometimes small, always fetid, generally pulpy, but occasionally watery. They were yellow or light brown, and often contained bits of undigested food. Her tongue was moist, but brown and loaded. She had a short dry cough. The child complained chiefly of occasional vertigo, of constant aching in all her muscles, and of absolute disgust for food. There was nothing to be detected in the lungs, there was a faint systolic cardiac bruit heard equally well at base and apex, not propagated into the axilla. There was no hepatic enlargement, but the spleen was easily to be felt and was distinctly tender. During the first three days her temperature varied in the morning between  $97^{\circ} 8$  and  $99^{\circ} 3$ , at noon between  $99^{\circ}$  and  $100^{\circ} 5$ , and at night between  $101^{\circ} 9$  and  $103^{\circ} 5$ .

Under the treatment above indicated she had begun to sleep perfectly well by the 4th night, and on the 5th day appetite is noted as voracious. On the 10th day colour had returned and the child seemed well, the night temperature however still reaching  $100^{\circ}$ . On the 12th day treatment was discontinued. The temperature did not rise above normal after the 10th day, and a week later the patient returned home in perfect health.

Systematically arranged in this Report and in that which immediately preceded it, as well as scattered through previous issues, there are now in print descriptions fully illustrative of, I believe, every form of enteric fever encountered in China. These records are the *pièces justificatives* upon which is based the clinical study of enteric fever which closes this volume.

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## CLINICAL STUDIES OF DISEASE AS OBSERVED IN CHINA

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### CHAPTER IV

#### ENTERIC FEVER

##### DEFINITION AND HISTORY

I WOULD define Enteric Fever as an acute disease of the entire economy, infectious but not contagious, presenting all degrees of severity, of uncertain duration, characterised by fever of remittent character, early and remarkable depression, nervous disturbance, rapid wasting and muscular degeneration, and by an infiltration of glandular tissue throughout the body with multinucleated cells, which speedily advances to complete granular or fatty disintegration in a larger or smaller number of the agminated and solitary glands of the intestine and of the glands of the mesentery \*

It is in the fact that enteric fever is a disease of the whole body—that is, that all the systems of organs corresponding respectively to the various functions of life are obnoxious to the influence of its cause, whatever that may be—that we find an explanation of the variability in its symptoms which is so great as to suggest the existence of several distinct forms of disease agglomerated under the single name of enteric fever. For reasons altogether unassignable, but such as we see illustrated every day in other sequences of events, the stress of the poison falls in different cases upon different sets of organs and with different degrees of intensity.

Twenty-five years ago the majority of the older practitioners at the open ports in China threw doubt on the existence of enteric fever among foreigners. They rarely if ever made a postmortem examination, and experience had so deeply impressed them with the multifariousness of malarial manifestations, that no phenomenon of disease, however curious and unexpected, seemed incapable of being reasonably referred to malaria as its cause. Hence the wide and constant prevalence and the heavy mortality of what was called remittent fever, for faulty diagnosis led to faulty treatment, and quinine was lavished on cases where its action must have been distinctly hurtful. Not unfortunately have mistaken views regarding this important matter altogether died out. A very few years ago a Shanghai resident contracted at another port what was diagnosed as “typho-malarial fever,” but which from the description given was certainly enteric, during which there were intense prostration, delirium, and subsultus, tympanites, gurgling, and iliac tenderness, and which proved fatal. The diagnosis, when

\* The description of enteric fever which follows may possibly be in many respects defective, for it is neither more nor less than an abstract from a multitude of case sheets and postmortem reports which have accumulated under my hands during close on a quarter of a century. Whatever I have not seen myself finds no place in it. But lacunæ which would be inexcusable in a didactic treatise are almost inevitable in pages whereof the sole object is not to teach but to contribute to the raw material of teaching.

challenged after the event, was reaffirmed on the ground that "as there were no spots and as the stools were sometimes brown the disease could not have been typhoid" The patient swallowed between 60 and 70 grains of quinine daily for more than a fortnight, a treatment certainly in nowise calculated to further recovery

There has been a similar history in India, where enteric fever first appeared in the statistical returns of the diseases of British troops in 1870

Yet the disease was recognised and its origin discussed by the medical officers serving with the British troops in China in 1859 During the years from 1861 onward scattered cases of enteric, some of which, it must be confessed, were diagnosed as "typho-malarial" or "mixed" fevers, but in any case not as remittent, were observed in Newchwang, Tientsin, Peking, Chefoo, Chinkiang, Kiukiang, Ichang, Shanghai, Ningpo, Foochow, Amoy, Swatow, Canton and Hoihow,\* that is to say, everywhere from end to end of the coast of China, but at least up to 1875 they were regarded as rarities, and to none of the fatal cases was any report of postmortem examination appended until September 1884, when Dr RENNIE, of Foochow, published† a brief account of characteristic lesions found by him Since then the morbid appearances have been frequently described In the earlier days the remarks on fevers inserted in the reports of missionary hospitals for natives were meagre in the extreme, and betray an absolute confusion between enteric, severe remittent, and the form of typhus described in the last chapter Notwithstanding this, in the lists of diseases treated appended to these reports "typhoid fever" frequently appears, as though the form were perfectly defined in the minds of the reporters Thus, 75 cases of typhoid fever are entered without any remark in the list given for 1861 by the medical officer of the London Missionary Society's Hospital at Shanghai Alternate over-hesitation and over-confidence in the matter of diagnosis were, however, natural and excusable at a time when nothing had as yet been done to clear up the morbid anatomy of a disease of so fluctuating a type

In some cases no doubt it was a mere question of language The late Dr REID, of Hankow, than whom there have been few more competent or patient observers, while admitting the frequency among his foreign patients of "malarious fever with enteric symptoms," against which quinine was perfectly inoperative, was in the habit of asserting positively that in a practice of 15 or 20 years in Hankow he had never seen a case of enteric fever Dr BEGG, though he recognises its presence at that port, believes that it differs from the disease as encountered in Europe, inasmuch as constipation usually replaces diarrhoea, and the eruption is seldom or never seen These differences, however, as will be shown farther on, are not sufficient to constitute a distinct form of the affection

However it may be among the natives, about whose diseases and their prevalence and propagation we know hardly anything, enteric fever has not at any time or anywhere in China shown itself in an epidemic form among foreigners On the other hand, it may be said to be endemic at all the ports open to trade How or why each individual case arises usually remains a mystery, however diligently we may attempt to construct a history of something swallowed or of something inhaled It is reasonable to suppose that there is much specific faecal contami-

\* See *Customs Medical Reports*, *passim*

† *Ibid*, xxviii, 13, xxx, 3

nation of air blown from fields which are manured exclusively with night soil, of milk through the medium of adulteration with creek water, and of the aerated beverages manufactured by natives, and sold in large quantities at very cheap rates, chiefly to sailors, in low-class taverns. To refer the cause of the disease to atmospheric or telluric influences independent of a contagium of some kind, is merely to darken counsel by words without knowledge. So long as we are surrounded by natives we are certain to be able to look in the right direction for the cause, whether we succeed or fail in isolating it from its manifold accompanying conditions. Our position is almost identically that of European residents in Indian cities where the close proximity of crowded native quarters is a constant source of danger. Brigade-Surgeon HAMILTON graphically describes<sup>1</sup> the filthy habits of even the highest caste Hindoos, and the conditions as to milk supply and as to the manufacture of aerated waters, which in India go to account for the spread of enteric fever among the natives, among foreign families, and among the British soldiery.

The native of India is an extraordinary anomaly, he is so bound down by caste prejudices that he will throw his food away if only the shadow of a stranger, or lower caste native, falls on his cooking place, and a Brahmin would die of thirst sooner than drink out of the vessel of a man inferior to him, yet this severe Brahmin may be seen washing and drinking in a tank, the banks of which are covered with human excrement, washed by every shower into the water he does not hesitate to use for all domestic purposes. The young soldier drinks foul water or dully made drinks such as ginger-beer, lemonade, etc. The milk supply in India is a well known and most fertile cause of disease.

It is almost incredible the filthy conditions under which we obtain our milk supply in India. Cows fed on litter and garbage of every description—cow sheds filthy to a degree—milk vessels washed in liquid sewage—milk diluted with water from the filthiest sources,—these are every day facts.

Making the necessary allowance for different local circumstances, this description might with hardly any exaggeration be applied to the foreign ports in China. I have myself stood by during the washing of a night-bucket and the cleaning of rice under the same tap at the same time, and I saw the spatters from the bucket falling into the rice basket. The rice was of course still uncooked, so probably in this particular instance no harm could be done. But the illustration is sufficient. The danger that must lurk in aerated waters manufactured by persons whose ideas of cleanliness and propriety may be estimated from the example just given is obvious. As regards milk supply, we are, at certain ports where dairies have been established under foreign supervision, better off than British residents are in India. But even under foreign management a great deal of work must be left to Chinese, who will not fail to use dirty water in preference to clean for washing vessels, who will neglect to drain and dry the vessels so washed, and who, when an opportunity offers of stealing milk, will supply the deficiency with water drawn from the nearest source—generally a creek which is no better than an open sewer.

Looking back for a quarter of a century on the medical history of the foreign settlements in China, nothing comes out more clearly than the fact that while at each place a certain show of sanitary improvement has been made, enteric fever has steadily grown in importance as a factor in the sickness and death rates. I give full weight to the fact that in China,

<sup>1</sup> *British Medical Journal*, 1890, II, 788

as in India, greater care and accuracy in diagnosis explain a certain portion, perhaps a large portion, of the increase. But any practitioner who for many past years has kept careful notes of all his fever cases, and now peruses them uninfluenced by the diagnosis recorded at the time, will admit that while some which he once placed under the rubric of remittent fever were in reality enteric, there is a real, notable and progressive increase in the ratio of enteric cases to all fever cases which come under his care. Malarial fevers have correspondingly diminished in frequency and importance, and the question may fairly be asked, though perhaps not yet answered, whether the causes, such as improved subsoil drainage, which are operating towards the extinction of the class of malarial affections, may not be contributing to the increase of enteric disorders.

### ETIOLOGY

As regards individual predisposition, not very much can be said. Youth is no doubt a predisposing cause, and it would appear that the number of males attacked is far larger than that of females. Thus, out of a group of 100 successive cases taken at random, 76 were males and 24 were females. But this really gives no information, for a considerable number of the enteric cases treated here come from the shipping in harbour, and these cases are of course all males and mostly young men. Of the same 100 cases the ages were—

Between 0 and 10 years, in 3 cases

„	11	„	20	„	„	19	„
„	21	„	30	„	„	57	„
„	31	„	40	„	„	16	„
„	41	„	50	„	„	5	„

The great preponderance of cases in the third decade of life is no doubt exaggerated by the peculiar local circumstances, still the excess is so notable that it cannot be altogether explained away. It may, therefore, be safely asserted that an individual is here more obnoxious to enteric fever between the ages of 20 and 30 than at any other period. Recent arrival in China does not predispose an individual so powerfully as we should expect, judging by the recorded experience of India. Thus there were—

39	cases	in which the patient had been less than 6 months resident,
9	„	„
13	„	„
39	„	„
		between 6 months and 1 year,
		1 year and 2 years,
		more than 2 years,

but the value of the first line of this table has to be seriously discounted for the reason above assigned.

The series of 100 cases upon which I have based these tables was thus distributed through the quarters of the year —

From January to March	25 cases
„ April to June	16 „
„ July to September	32 „
„ October to December	27 „

It would thus appear that as regards season enteric fever is most prevalent in summer

## SYMPTOMS

Before analysing the symptoms which present themselves in well marked cases of various degrees of severity, it will not be inopportune to cite the history of a purely typical case, occurring in a young subject recently arrived, advancing without complication, but with almost every ordinary symptom, to a favourable issue at the end of the third week. It represents the natural course of the disease when the patient is placed amid favourable surroundings, for, after stopping quinine, treatment was limited to a carefully regulated diet, sponging with tepid water and vinegar, the administration of a few chlorate of potassium lozenges, and an occasional enema.

*Enteric Fever. Natural course. Recovery*—A young English girl, aged 15½, recently arrived in Shaughu Ailing for a week with sleeplessness, articular and muscular pain, "stitch" in left side of chest, frontal headache, intolerance of light, anorexia, foul tongue, yellow diarrhoea, sore throat, pungent skin. She had been delirious during the night previous to summoning advice. Had had 10 grains of quinine every day, administered in amateur fashion.

Seen 8th May 1885, supposed to be the 8th day of the disease. The morning temperature was 102°, afternoon, 104° 5, evening, 105°. Face flushed. Spleen tender, could just be felt on deep palpation. No hepatic enlargement or tenderness. Heart healthy. A few disseminated moist râles over posterior surface of both lungs. Tongue brown, moist. No spots. Slight gurgling in caecal region, no marked tenderness. Pillars and back of pharynx much congested, on each side behind the posterior pillar there is a raised congested patch, only a part of which is visible, which appears to be the main cause of the throat trouble. Stools characteristic.

There was great prostration throughout. A very faint myocardial bruit was audible from the 10th day to the establishment of convalescence. The pulse was soft and lingering, varying in frequency from 78 to 100, dicrotic after the 12th day. Patient was delirious from the 10th to the 20th day, very deaf and stupid from the 10th day onward. The pupils were dilated but sensitive after the 12th day. From the 16th to the 19th day there was general muscular tremor, with subsultus from the 18th to the 21st day. There was no rigor. Sleep was variable, but a fair amount was obtained, mostly disturbed by visions. Cough was troublesome for a few days, on the 10th she expectorated some blood-stained mucus with marked relief, and on the 12th day she had a paroxysm of hurried breathing without dyspnoea, lasting for a couple of hours, during which the respiration rate 100 to 40. There was nothing discoverable in the lungs beyond slight bronchial catarrh to account for these symptoms. The condition of the tongue varied, it was sometimes brown and dry, occasionally normal. The lips were cracked, and sordes collected on the teeth on the 11th day. On the 10th day an ulcer appeared on the congested patch on the left side of the pharynx and spread for two days, causing some dysphagia. It had healed by the 17th day, and the patches disappeared shortly afterwards. Thirst was urgent. There was complete anorexia until the 15th day, when appetite began to return. Paroxysms of sweating were frequent. The eruption appeared in two crops, on the 10th and 13th days respectively. From the 11th day out the skin was covered with sudamina. The stools were characteristic up to the 17th day, horribly fetid, but occasionally solid. declared itself on the 10th day. On the 14th day the abdomen was rather excavated. There was no vomiting, splenic tenderness persisted to the end of the illness, and once or twice slight hepatic sensitiveness was complained of under percussion. There was no ascertainable enlargement of the liver. Gurgling was present from the first in the caecal region, and from the 10th day onward there was some sensitiveness. Her hair began to fall out on the 11th day, and had become very thin before the illness terminated, six months later it had grown luxuriantly. For a week after convalescence was established

she suffered severely from aching in the soles of her feet and cramping pains in the joints of her fingers and toes. After her recovery her memory was a complete blank with regard to the earlier and middle periods of her illness. The following abstract indicates the range and course of the temperature —

8th to 15th day —Max,  $105^{\circ}$  on 8th morning and 11th forenoon, min,  $100^{\circ} 2$  on 15th morning. The temperature was generally close to  $104^{\circ}$  between 11 A.M. and 3 P.M.

16th to 19th day —Max,  $103^{\circ}$  on 18th afternoon, min,  $98^{\circ} 4$  at 11 A.M. on 16th day. During this period there was a fall of one or two degrees at night.

20th day —Max,  $103^{\circ} 4$  in the afternoon, after a saline laxative, which stirred up and brought away a quantity of putrid feces. Temperature normal all through forenoon and at night.

After the 22nd day the temperature remained permanently normal.

But it is seldom that a case follows the classical outline of the text-books. A stormy onset may prelude a benign and rapid course to recovery.

Thus, in a case first seen on the 6th morning the patient's skin was dry and a dirty yellow, there was much subsultus on attempting to grasp an object, the tongue was dry, there was no incoherence. The temperature was  $104^{\circ} 6$ , it rose to  $105^{\circ} 7$  at noon, and to  $106^{\circ} 2$  at night. Respiration 30 (48 at night), superficial, nothing discoverable in chest. On the 7th day the stools were frequent and characteristic. The temperature remained elevated, and the other symptoms but little changed until the 9th day, when convalescence suddenly set in. On the evening of the 8th day, after the temperature had been high for several days, and had indicated on at least one day what might be called hyperpyrexia, there was very marked accentuation of the second sound in the tricuspid area, the more remarkable as the other cardiac sounds were feeble and distant. This had disappeared when the heart was re-examined two days later. On the 8th and 9th days slight fugitive ecchymoses appeared on the arms. These vanished after a couple of hours, but only to appear again, hardly ever in the same place. The change of position was ascertained by surrounding each patch with ink. *Ilac gurgling* was distinct on the 7th day. On the afternoon of the 9th day there was a long and profuse sweat, after which every symptom, except intense weakness, at once disappeared.

On the other hand, a condition that hardly passes beyond mere malaise during the whole course of the attack may be accompanied by a lesion destined to prove suddenly fatal within a few hours.

Death occurred suddenly in the case of a young Englishman a couple of hours after I had left him reading a newspaper on the 20th day of what was to all appearance an extremely mild attack of enteric fever. His temperature had always been normal or subnormal in the early morning, rising to  $102^{\circ} 5$  or  $103^{\circ}$  at night. Diarrhoea was never urgent, but the stools were characteristic, and there were rose spots. It was with difficulty that he had been kept in bed, and his life in hospital was a continual protest against the restriction of his diet. At the autopsy a single Peyer's patch, 3 inches from the valve, was found deeply ulcerated, slight congestion being all that could be discovered elsewhere. Death was due to the rapid formation of a clot in the pulmonary artery.

When considering the phenomena presented by a given case it should be borne in mind that no single symptom can be assigned as pathognomonic. No symptom out of all those presently to be enumerated may not be absent. We must be content to judge by the grouping of such as are present in each instance, taking account of their individual unreliability. Thus, for example, the degree of heart weakness manifested need not be proportional to the severity of the disease, nor, as has just been shown, can the benignity of the general symptoms be trusted as an indication of the nature or extent of the existing lesions. It may, therefore, be

stated that in any case taken at random disproportion possibly exists between the lesions and the symptoms. While, therefore, we must, at least for the present, admit that the characteristic grouping of a larger or smaller number of well defined symptoms imparts pathological unity to enteric fever, it is perhaps more true of it than of any other disease that each case has a special natural history, the symptoms often differing widely as between one case and another, and often varying from day to day in seeming arbitrary fashion in each individual case.

There is no means of accurately determining the period of incubation, for the simple reason that it hardly ever occurs that the source of infection can be clearly made out. LIEBERMEISTER, from some extremely vague observations, guesses the average incubation period at three weeks. For us it is only safe to say that we know nothing about it.

It is not necessary to repeat here in narrative form the history of the earliest symptoms which lead a patient to seek advice, and of those observed at the moment when he comes under treatment. So far there is a certain general similarity between all cases, and the history given on page 53 suffices to indicate what these common symptoms are. It will be more profitable to classify the phenomena observed, analysing each group and describing the more important members of it as necessity arises.

*Temperature*—It is seldom that a case of enteric fever is seen during the first three or four days. When it is seen at this early period the temperature alone may appear to indicate an ordinary simple fever, or an intermittent of quotidian or tertian form. It may, however, be laid down as a rule that in enteric fever  $104^{\circ}$  is not reached before the 3rd day. After that day the rise may be very rapid. I have just recorded an instance in which, at 9 P.M. on the 6th day, the mercury reached  $106^{\circ} 2$ . Such cases are not necessarily the most menacing. However indispensable a careful watching of the temperature is, it cannot be too carefully borne in mind that the bodily heat is only one symptom out of many, and important only in consequence of its effect—whether sudden, as in hyperpyrexia, or prolonged, as in the ordinary course of a continued fever—upon the nervous centres, upon the cardiac muscle, and upon the great glandular organs. That enteric fever may run its course, and even a severe course, with very slight elevation of temperature or with none at all should never be forgotten. Cases of this kind are, however, rare. A more important observation is that in the course of an attack the temperature curve may vary between very wide limits while the general symptoms show no improvement in correspondence with the lower readings of the thermometer. A detailed discussion of modern opinions as to the significance of fever considered in itself would be altogether out of place here. It is sufficient to say that (except in urgent and very rare cases of hyperpyrexia, when the heat alone is sufficient to kill within a short time) the exclusive direction of therapeutical measures to the lowering of the temperature in enteric fever is not reasonable, is, so far as my experience goes, seldom more than momentarily successful, and is often distinctly hurtful.

The general law that enteric fever is of remittent form, the temperature being higher at night than in the morning, is the first outcome of the study of charts constructed from cases



in which antipyretics have not been administered, and wherein the normal curve is not distorted. Exceptionally the form is inverted, the morning reading of the thermometer being higher than that of the night. Neglecting such cases, and supposing that the temperature is taken sufficiently often, it will be observed that—

1° As a rule, in uncomplicated cases of average severity the daily minimum during the first three weeks varies between  $97^{\circ}$  and  $102^{\circ} 5$ , and the daily maximum between  $103^{\circ}$  and  $105^{\circ} 5$ .

2° In exceptional cases there may be no rise of temperature whatsoever, or an altogether insignificant rise, while diastole of the pulse and probably the characteristic grouping of many other symptoms indicate the nature of the disease. I have recorded a lingering case with unmistakable symptoms, including eruption, in which the maximum reached was  $99^{\circ} 8$ , and two others in which there was no rise whatsoever.

3° When the morning temperature is moderate (e.g.,  $102^{\circ}$  or  $103^{\circ}$ ) there is a steady rise until about noon (occasionally a slight fall), a further rise from about 2 P.M. to 6 or 7 P.M., and a gradual fall of a degree or so up to midnight, the temperature continuing to fall up to 6 A.M.

4° When the morning temperature is very high (e.g.,  $105^{\circ}$ ) there is a fall of one degree or a little more towards noon, a rise through the afternoon up to 6 or 7 P.M. until the morning temperature is reached or slightly exceeded, and then a fall until about midnight, when the temperature is nearly the same as it was at noon.

5° The morning temperature may be in turn subnormal, normal, or not more than  $1^{\circ}$  above normal all through the course of a severe case in which temperatures of  $104^{\circ}$  or  $105^{\circ}$  are registered at other periods of the day.

6° Occasionally in the course of the disease a sudden fall from  $104^{\circ}$  or more to normal or less (in one case, fatal four days later, to  $96^{\circ}$ ), the depression lasting for an hour or more, may occur without anything being found to account for it, and without any effect upon the other symptoms.

7° When convalescence is commencing the temperature is often very unsteady, subnormal, normal, or slightly over normal in the early morning, slightly rising or falling towards noon, and falling or rising towards evening.

8° Occasionally, but rarely, a permanent fall from a high daily average temperature to normal occurs suddenly, and marks the final departure of the fever. This is generally accompanied by a profuse sweat or a rush of diarrhoea, and may be regarded as termination by crisis.

9° When a spurious relapse occurs in the course of convalescence, or when a true relapse occurs after several weeks, the temperature follows the same rules as it observes in ordinary cases.

10° The internal temperature is generally, but not always continuously, high for several hours before death. A high internal temperature with cold extremities is of extremely bad augury, but the prognosis is not necessarily fatal.

11° Death may occur in cases where the temperature has been moderate throughout (See PROGNOSIS).

The weekly averages of temperature, taken every three hours day and night, in a series of 62 cases terminating in recovery, in which no antipyretics were administered, are exhibited in the subjoined table. The observation has a certain interest, and is not without value inasmuch as it indicates that longer intervals of comparatively low temperature occur during the second and third weeks than would be inferred from the two or three observations which commonly are all that are daily taken. It has to be remarked that the averages given for the

sixth week are derived from 15 cases only, as out of the 62 these (24·19 per cent) were all in which the fever lasted beyond the 35th day

Day	Average Maximum	Average Minimum
1st to 7th	104° 13	101° 21
8th „ 14th	103° 65	98° 47
15th „ 21st	103° 12	98° 51
22nd „ 28th	102° 44	97° 62
29th „ 35th	101° 92	97° 95
36th „ 42nd	103° 70	98° 84

In order to enumerate all the peculiarities of the temperature curve it would be necessary to detail a multitude of isolated cases. Thus, I have notes of several lingering cases in which the temperature after hardly exceeding 100° for several days at a time, swung between 102° and 105° for a week or more, and then fell to normal without any general improvement. Or I might cite at length the report of a case fatal on the 23rd day, in which up to the 17th day the highest temperature was 101° 2. On the 17th evening it suddenly ran up to 103°, but fell immediately to about 100°, at which it remained until a few hours before death. Any set of rules contained within a moderate compass must therefore be imperfect. Those just given do not profess to do more than cover the majority of cases.

*The Nervous and Muscular Systems*—The symptoms referrible to these systems I have grouped into series without attempting to indicate the exact periods at which the different groups make their appearance. The order corresponds in a general way to the progress of the disease, but in some cases the groups overlap one another.

Rigor, prostration, general malaise, marked languor, irritability of temper, muscular weakness with exaggerated sense of fatigue on the slightest exertion, restlessness, sleeplessness, or disturbance of sleep by visions, vertigo, tinnitus, subjective sensation of flashes of light before the eyes, headache—frontal, temporal or occipital, backache, pains in muscles and joints, subjective feelings of chills and heat, slight incoherence.

Apathy, stupidity, loss or disturbance of memory, delirium, deafness, muscular tremors, subsultus, rigors, dilated and insensitve pupils.

Exaggeration (occasionally) of senses of hearing and smell, stupor, violent or muttering delirium, moaning, sighing, fly-catching and vermin-hunting, hallucinations of sight and hearing, increased cutaneous and muscular reflex irritability, convulsions, tetanic contractions, hiccough, stupor, insensibility, involuntary evacuations, coma-vigil. Suicidal attempts may be made, but not with suicidal intent. The patient lies with eyes half open and lower jaw fallen.

Rigor may be an initial symptom, or may present itself first after several days, or even in the third or fourth week. In the latter case it is probably due either to an intercurrent malarial attack or to septic absorption. It may occur frequently, or not at all. It may be of excessive violence, and it may be accompanied or not by a fugitive fall of temperature. Sleeplessness is very frequently distressing, and sometimes proves almost invincible. Spontaneous pain in the muscles and joints is often accompanied by localised areas of exquisite tenderness—on the scalp, on one or the other side of the abdomen, most frequently in the epigastric region. Or spontaneous pain may take the form of sciatica or pleurodynia, or of

flying internal pains of neuralgic character on following the course of the spine. Or it may be sternal, and give rise to the suspicion of periostitis. Finally, such pain may persist all through the disease, or be altogether absent. Vertigo is often a very early symptom. Delirium is nearly but not always present. In one case (fatal) it was extremely violent on the 5th day, and was accompanied by vermin-hunting. It is seldom present before the 7th day, but then may take any imaginable form. It may be present only at night, or it may never pass beyond a condition of dreaminess and slight incoherence. When delirium is violent there are generally terrific illusions. Early muttering is of worse augury than early violence. It is usually, and I imagine correctly, thought that assurances on the part of the patient that he is perfectly well are of ominous significance, but I have found this apparent buoyancy in many severe cases which however terminated favourably. Depression is the rule, and is certainly more favourable than exaggerated cheerfulness in bad cases. Delirium may persist to the seventh week, and I have notes of one curious instance where it was first observed on the 43rd day. Muscular weakness shows itself in obvious ways from the first. Later, it is manifested by dorsal decubitus and a tendency to sink to the foot of the bed. A case proved fatal in which this tendency was observed as early as the 4th day. The tongue becomes flabby and tremulous, and falls back under accidental pressure with the thermometer, the patient has difficulty in protruding it, and when protruded he does not think of drawing it back. These are late and ominous symptoms. The mouth hangs open. There may be paralysis of the soft palate, with consequent inability to swallow, and snoring. The tremor, which is generally marked at an advanced period, is usually due to mere weakness, but is occasionally of a convulsive character. I have seen it disappear temporarily after a severe hæmorrhage. I have also seen it extremely severe as early as the 4th day in a case which recovered. It may be paroxysmal, almost of the character of rigor. Subsultus is almost invariable when a case is grave or prolonged. Floccitatio and carphology are evidences of profound poisoning, and are seldom if ever absent in fatal cases. Large disorderly jerking about of the hands is of like or of still worse import. Of two cases of general convulsions (not epileptic), one recovered and one died. Tetanic contractions of the neck, back and limbs, or of the forearms alone, or of the neck muscles only, are fortunately rare. In cases where they occurred I never saw recovery. They are evidence of exaggeration of the reflex activity of the cord excited by toxic or hyperthermic disturbance of the spinal centres.

I observed one curious case in which, while the forearms were so firmly flexed on the arms that no justifiable amount of force could extend them, the patient now and then extended them voluntarily.

To the same class of phenomena belong the instances in which the slightest touch on the cutaneous surface makes the patient jump as if an electric shock had been administered, and those wherein light percussion of the pectorals induces strong contraction and causes localised lumps to form. The fugitive retraction of the abdominal wall which is sometimes observable should probably be placed under this category. In five out of eight cases in which during the second and third weeks I have had an opportunity of testing the patellar tendon reflex, I believed that it was slightly exaggerated on both sides. It must, however, be acknowledged that "knee-jerk" activity differs so much in perfectly healthy individuals, that no great value attaches to this observation.

Deafness is sometimes of gradual onset and sometimes sudden. There is always intolerance of light, and the pupils are almost invariably contracted and usually insensitive. In one case I observed an interval (22nd to 26th day) during which they became sensitive. Smell and hearing sometimes become abnormally acute. I have notes of three such cases, two of which (where hearing was exaggerated) proved fatal, while the third, in which the sense of smell became extraordinarily developed, recovered. In none of these cases was there any illusion of the senses involved.

In the two fatal cases the patients, for several hours on the day preceding death, instead of answering questions put to them, repeated the questions with absolute accuracy.\*

Paroxysmal dyspnoea and fits of sighing or irregular respiration, for which no adequate explanation can be found in the lungs, are purely nervous phenomena. As mere curiosities—in one case the attack was ushered in by a series of fainting fits, and in another a fit of unconsciousness occurred on the 16th day, lasting for about half an hour. Both terminated favourably.

Loss of weight is always marked. The daily average for 10 cases was 1.49 lb. It begins early, and is due as well to wasting of the muscles as to absorption of fat.

During convalescence paræsthesiæ of various kinds are common.

Excluding one case of aphasia, which was probably bulbar, I have not seen the true paralyses (spinal, cerebral or peripheral) described by TROUSSEAU, LANDOUZY, NOTHNAGEL, EISENLOHR, MURCHISON, CORMACK and many others. It seems probable that exceptional violence of the initial lumbar and articular pain, the hebetude of the period of illness, and the profound weakness of early convalescence, may in some instances assume the guise of paralysis.

*Symptoms exhibited by the Digestive System*—Here also I have grouped the symptoms of typical cases in progressive order. It is not to be supposed that all are present in any individual case.

Anorexia, thirst, nausea, bilious vomiting, white or brown loaded tongue with red prominent fungiform papillæ at the tip and along the margins, diarrhœa or constipation, fœtor of breath, fœtor of stools.

Colicky pain, gurgling in the cæcal region with hypersensitiveness on palpation, tympanites from relaxation of the muscular layers of the intestine, enlargement and tenderness of the spleen, which reach their maximum before the 10th day, slight enlargement and tenderness of the liver.

The tongue is dry, brown, sometimes black, fissured longitudinally or transversely, or may be perfectly normal, or it may change rapidly from the former to the latter condition, while the other symptoms remain unaltered. The lips are dry and blood-stained from picking, the gums and teeth covered with sordes. Diarrhœa may be frequent and profuse, 10 or 15 stools in the 24 hours, as a rule, the number of stools is from four to six. The stools are generally liquid, flocculent, depositing on standing a sediment of epithelial debris and undigested food, speckled with minute black dots, alkaline (rarely acid or neutral), ochre-coloured or brown, perhaps blood stained, always horribly fetid. They are sometimes viscid, and often like gruel. Constipation frequently replaces diarrhœa, and at a late period may indicate the existence of deep ulcers paralysing the intestinal walls, and may precede profuse hæmorrhage.

Exaggerated tenderness instead of being limited to the cæcal region may be referred to the whole abdomen, or may exist only in the left iliac region, or over a small area in the middle

\* Echolalie of French authors.

of the hepatic region, or close to the umbilicus, or in the epigastrium. It is often absent. Gurgling usually but not always accompanies tenderness. It may appear for the first time late in the third week. Colic may be severe. In one case it was so violent as to induce a condition of collapse, and to suggest the existence of strangulation of the intestine. Vomiting may be a source of serious distress. When it occurs early it is always bilious, when urgent at a late period it usually takes the form of hæmatemesis, the vomit containing nearly pure blood or "coffee-grounds," or late vomiting may be due to sudden and excessive secretion of bile. In no case have I found very notable enlargement of either liver or spleen. The lower edge of either seldom reaches to more than 1 inch or  $1\frac{1}{2}$  inch below the corresponding costal border, and tenderness on palpation is by no means invariable. Tympanites is generally present, it may be limited to one side of the abdomen, it may suddenly disappear and then recur, it may be absent throughout, or it may be so excessive as to cause great distress, and, later, to prove an independent source of danger by pressure on the diaphragm.

The diarrhoea may at the beginning be of dysenteric form. It may be speedily arrested, giving place to constipation, or it may persist and become colliquative. The stools are sometimes olive-black and oily or dark brown, from excess of bile, or they may consist of bloody serum ("meat-washings") with slight fawn-coloured sediment, or at the last they may contain portions of slough and have a gangrenous odour. Occasionally the stools are almost normal throughout. As a rule, the appetite fails early, but it may be normal, or (rarely) voracious. Thirst is often urgent, in graver cases it is altogether absent.

Slight and temporary intestinal bleeding at an early period need give rise to no anxiety. The case is, however, far different when at a late stage with profoundly altered blood, and probably degenerated vessels, a severe hæmorrhage occurs. It is not easy to say which is of worse omen—a discharge of arterial blood which has been rapidly expelled after escape from an eroded mesenteric vessel, or a copious oozing of tarry blood from the edges of extensive areas of ulceration. Hæmorrhage may appear early and persist, or it may be intermittent. I have seen it profuse on the 5th and 6th days, on the 6th day, on the 9th and 10th days, and on the 13th day, all four cases terminating favourably.

In one case, which terminated in recovery, hæmorrhage was constant from the 8th to the 14th day. It was then absent for a week, appeared slightly on the 21st day, and was profuse on the 25th, 27th, 28th, 30th, 32nd, 37th, 55th and 56th days, the temperature during this long period being generally normal, occasionally subnormal, and only on one occasion (34th day) reaching  $101^{\circ}4$ .

It may first appear in the sixth week (fatal case). At whatever period it occurs, provided it be not of great violence, it may or may not influence the temperature.

Thus, in a case which was throughout characterised by hæmorrhages of all degrees of severity, small quantities of blood were seen in the stools on the 12th, 17th, 18th, 19th and 20th days. On the 21st day three hæmorrhages occurred, amounting to 80 ounces of scarlet blood, which speedily coagulated. The patient was blanched by the bleeding, but showed no signs of collapse. The temperature, which had been  $104^{\circ}$  on the night of the 20th day, was on the 21st,  $99^{\circ}5$  (7 A.M., four hours after the first hæmorrhage),  $99^{\circ}6$  (noon),  $99^{\circ}8$  (5 P.M.),  $100^{\circ}2$  (10 P.M.). It rose again on the 22nd day. Three hæmorrhages, amounting to 17 ounces, occurred on this day, mostly black clots, but had no effect on the temperature. Again, on the 24th and 37th days there were small bleedings. Recovery

*Urine*—The urine is at first "febrile"—dark, scanty, muddy, of high specific gravity, and containing a large excess of urea and uric acid, while the chlorides are notably diminished. By the end of the second week it is generally pale and copious, and later on often contains a small quantity of albumen, or, more frequently, of peptones. In very severe cases with prolonged high temperature hæmaturia may occur, and along with early deep jaundice the urine (I think invariably) contains the colouring matter of the blood. I have notes of one case of severe hæmaturia beginning on the 10th day which ended in recovery.

Retention is rare, but I have once or twice observed it at the end of the third week, while the rectum was evacuated unconsciously. Incontinence of urine, as well as of fæces, is common enough, and may occur early. In four cases, all females, "incontinence," "stammering bladder," "intense bladder irritability," "distressing dysuria," were, respectively, noted from the first. Irritability of the bladder is sometimes paroxysmal, disappearing for days at a time. As a rule, involuntary escape of both urine and fæces does not occur until between the 11th and 20th days. In one case (female) it was observed on the 6th day.

*The Circulatory System*—The heart speedily shows signs of weakness and irritability, its muscular structure being no doubt affected by the high bodily temperature, while it is being directly poisoned by the chemical products fabricated by the disease germs. Syncope may readily be induced by allowing the patient to sit up. Sooner or later, in the great majority of cases, but generally towards the close of the second week, a soft bruit is audible with the systole at both apex and base, but most distinctly at the apex. It indicates no valvular mischief, and is doubtless due to toxic interference with the innervation of the heart and degenerative changes in the cardiac muscle, manifesting themselves by irregular contraction. It has, however, given occasion to an erroneous diagnosis of pericarditis. It generally persists until convalescence is established. A mitral regurgitant murmur may declare itself at an advanced period, but this too may safely be attributed to changes in the muscular wall of the heart, and will disappear with the advance of convalescence. (See also CONVALESCENCE.)

To weakness of the heart's action is to be attributed the cold extremities and the paroxysmal cooling of the surface observed in grave cases at an advanced period. The patient while his internal temperature is 104° or more may complain bitterly of cold. The same mechanism explains the dyspnoea, sometimes amounting to orthopnoea, and accompanied by lividity of the features and imminently threatening collapse, which, without any sufficient explanation furnished by the condition of the lungs, and in the absence of any cardiac valvular lesion, occasionally occurs paroxysmally in the third or fourth week. I noted it once on the 8th day.

Epistaxis, which almost invariably occurs, and at any period, is an indication of weakened (degenerated?) vascular walls. It may by its violence prove menacing even in the first week.

The pulse is usually frequent from a very early period, but in any case soon becomes small, soft and lingering. Its frequency is subject to wide variations without any modification of other symptoms. I have noted a rate of 40 to 46 between the 8th and 21st days, 48 to 60 between the 13th and 18th days, and 65 to 72 between the 10th and 14th days. It seldom fails to reach 110 or 120 at some period of even the most favourable cases. It is, I think, always dirotic

after the beginning of the second week, and when this cannot be at once recognised raising the arm will often make it perceptible. Diastolic murmurs will sometimes be detected by the sphygmograph before the finger can make it out\*. When very distinctly pronounced the heart sounds at the same time assume a foetal character. Allied to the diastolic condition is that in which there is a back stroke after each beat, like the *pulsus bisferiens* of aortic stenosis. The pulse may be irregular and intermittent. In estimating the importance of this symptom we should not forget that the patient may be in the habit of smoking to excess. Apart from this, when the general symptoms are not disquieting intermittence is not necessarily of bad augury. It may be due to some reflex inhibitory action starting from the intestine. Instability of the pulse, depending on relaxation of the arterial walls as well as on the enfeebled cardiac action before referred to, is manifested by the quickening effect of a change of position and by the condition approaching collapse often induced in the later stages of the disease if the patient should suddenly sit up in bed. So likewise is to be explained the tendency to local congestions, superficial and visceral, in which doubtless the altered character of the blood plays a part. Hence the hæmorrhages not dependent on ulcerative erosion of vessels, the hypostatic pulmonary congestion, lividity of the features, and the occurrence of small cutaneous ecchymoses.

The pulse may be at the same time both quick and lingering, the expansion of the vessel being slow even when the complete cycle is a short one. In rare cases it may be full and vibrating, or large, soft and regular, and this even at an advanced period. But as the end of the third week is reached it is, in grave cases, miserable, and for hours or days before death may be reduced to a mere ripple.

*The Respiratory System*—The nervous symptoms which declare themselves through the lungs have already been mentioned. Bronchitis with dry, hacking cough and scanty, frothy or muco-purulent expectoration is of almost invariable occurrence. The sputa are often blood-stained, the blood being derived either from the inflamed bronchial mucous membrane or from the pharynx. Breathing is accelerated almost from the first, and I have seen the respiration rate reach 42 in a minute on the 7th day, without any trace of pneumonia to account for it.

Pneumonia is considered under COMPLICATIONS.

*Phenomena exhibited by the Skin*—The skin may be dry and pungent from the first, or parchment-like, or bathed in sweat. Towards the end of the second week paroxysmal drenching sweating fits are often observed. They are frequently absent. When they occur the secretion has usually a nauseous odour, sometimes very marked. They may have no influence on the bodily temperature, they are sometimes immediately preceded by a rigor, and as they are as common in winter as in summer they cannot here be attributed, as they sometimes have been in India, to excessive atmospheric heat over-stimulating the sweat glands. They are probably of septic origin. Rarely a profuse critical sweat, somewhere about the 20th day, marks the disappearance of the fever. A fugitive pink or livid flush will early be noticed on either cheek or on both, independent of the occurrence of pneumonia.

\* I have many sphygmograms taken from enteric fever cases, but I do not reproduce them as they are almost identical with those figured by MAREY. *Physiologie médicale de la Circulation du Sang*, pp. 389, 391.

In two cases where there was no pneumonia I observed herpes at the corners of the mouth. In another, complicated with severe pneumonia and pleurisy, I found an eruption of herpes zoster. Once also (on the 42nd day) a herpetic eruption appeared on the prepuce. This may have been independent of the fever, but the patient assured me that he had never before suffered from this affection.

The entire surface of the body may be dusky. About the 10th day the typical eruption should be looked for. It is frequently absent in cases where all other specific symptoms are perfectly well marked, and its appearance may be delayed at least as far as the 15th day. When present it appears at intervals of four or five days, in successive crops of minute lenticular, slightly elevated, moderately hard papules, of rosy colour (occasionally livid) which disappears under strong pressure, or an additional spot or two may be found every day for a week or 10 days. I have never seen it elsewhere than on the abdomen and on the thorax as high as the level of the nipples. There is no noticeable increase of fever corresponding to the appearance of each crop. The eruption invariably vanishes very shortly after death. Sudamina are generally abundant.

Dr BEGG has rarely, if ever, observed the specific eruption in enteric cases at Hankow, and Dr WALES has never seen it at Canton.

In rare instances I have observed minute ecchymosis-like spots grouped into small patches on the arms or the chin. They are fugitive, disappearing after a couple of hours without leaving a trace, but reappearing after a longer or shorter interval, hardly ever in the same place. In one instance the successive appearances of these spots on the face were attended by marked symptoms of collapse.

Jaundice, which, according to Sir WILLIAM JENNER and Sir THOMAS WATSON, never accompanies either typhus or typhoid fever in England, is here generally (perhaps always) present to a greater or less extent in prolonged cases. A faint yellow tinge of the skin is a common early symptom, and even in the lightest cases, when accompanied by deepening of the colour of the urine, is doubtless evidence of pyrexial exaggeration of the normal blood-corpuscular disintegration. In proportion to its depth it indicates more or less profound alteration of the blood and more or less serious interference with the action of the liver. When severe jaundice occurs early (before the 11th day) it becomes a most formidable complication, it is generally associated with hæmoglobinuria, intestinal hæmorrhage and hæmatemesis—indications of blood dissolution. Such cases are for the most part fatal (*see* PROGNOSIS). When it appears late it is no longer of such grave import, and its indications are sufficiently supplied by other symptoms. I have published many cases in which it was extremely well marked in or about the third week, but which ended in recovery.

Bed-sores, more or less extensive gangrene from pressure, rarely occur before the middle of the third week (*See* COMPLICATIONS).

Prickly heat, in all the cases where, under my observation, it had been present at the onset of enteric fever, rapidly disappeared, and mosquitoes avoid an enteric fever patient.

There is generally considerable, but temporary, loss of hair during the fever or during convalescence.



## LATENT ENTERIC FEVER

It is but seldom that we come across the "ambulatory typhoid" in which a patient goes through the entire, or nearly the entire, course of his fever without suspecting that there is anything wrong with him. The following histories describe conditions approaching this —

Meicantilo assistant, aged 29. Accidentally observed in his office, where he had been working in the usual way for the usual number of hours daily. He looked extremely ill, but said that beyond sleeplessness there was nothing the matter with him. Sent to bed. Temperature at noon  $104^{\circ}$ . Stools liquid, frequent, black from iron which he had been taking freely on his own account. Three rose coloured spots on abdomen, much tenderness, distinct gurgling, tympanites. At night, temperature  $102^{\circ} 4$ , wandering. Tongue dry, yellow, red tip and edges. Spots continued to come out, and the fever followed the course usual in the third and fourth weeks. Convalescence was established on the 12th day after treatment began. When, after five days, the stools lost their black colouration they were seen to be typical.

In this case sudden death might have occurred. The circulation was feeble and intermittent when the patient was first seen, and on the following day he had a paroxysm of cardiac failure with dyspnoea, extremely rapid incomplete cardiac contraction, pallor and cold sweat, which would probably have terminated fatally had it come on while he was sitting at his desk.

In the case just related the syncope was probably due either to some inhibitory action reflected to the heart from an ulcerated intestine, or simply to muscular failure of the heart itself, the degenerated fibres being greatly overstrained by the patient's daily work, which had not been in any way diminished.

In the following case it would not have been surprising if sudden death had occurred by perforation. The intestinal lesions were certainly extensive and probably deep.

A lady recently arrived in Shanghai, phthisical family history on both sides. Shortly after her arrival she went on a long sea trip, in the course of which she caught cold. This was speedily followed by "break-bone pains," occasional vomiting, yellow diarrhoea, sore throat, distension and tenderness of the abdomen. Her skin was always hot, often pungent, she slept badly, and talked in her sleep. Complete anorexia. After 10 or 12 days frequent starting of the muscles of the limbs was observed. Meanwhile she went about at each port that she visited, inspected curio shops, and took much exercise. She swallowed a great deal of quinine.

On her return to Shanghai, probably about the 18th day of her illness, her tongue was dry and irritable, all the papillae largely developed. Her gums were spongy. There were a number of minute herpetic ulcers on the mucous membrane of the lips. Her skin was dirty-yellow, lips pale. The abdomen was slightly distended, uniformly sensitive. Severe cough, with frothy tenacious expectoration. The temperature was  $101^{\circ}$  (7 A.M.), and rose to  $104^{\circ} 3$  at night. For 12 days a fever temperature was maintained, after which convalescence was established. The morning temperatures ranged between  $100^{\circ}$  and  $103^{\circ} 5$  for 11 days, and the night temperatures between  $101^{\circ} 4$  and  $105^{\circ} 2$ . The stools were characteristic, and all the symptoms indicative of the third and fourth weeks of ordinary enteric fever.

It is noteworthy that in this case relapse occurred six weeks after full convalescence.

## ENTERIC FEVER IN INFANCY

I have but rarely encountered enteric fever in young children, I hear of many cases, but I see hardly any. Malarious fevers, fever from indigestion, from worms, from exposure to heat, occasionally fever of purely nervous character, are all common enough among children, and no

doubt explain many marvellous recoveries from typhoid within a week or 10 days. When it does occur in children under 10 or 12 years old the fever runs higher during the first week than it ordinarily does in adults, and there is little or no tendency to intestinal hæmorrhage. Apart from this, the symptoms are essentially the same as those which present themselves later in life. After running its normal course of three or four weeks genuine typhoid in the child often leaves after it a condition of deep anæmia with dyspepsia, bowel irregularity, fetid stools, and a tendency to moderately high temperature towards evening, which last almost indefinitely. Here quinine, or quinine with arsenic, alcohol and gentle saline purgatives, with frequent sponging with hot diluted vinegar, are more effectual than even change of air, which often completely fails to restore health. Iron is, I think, seldom of any use and is often injurious.

I have had no fatal case among children, which may perhaps be explained by the small experience of the disease in infancy to which I have confessed.

### COMPLICATIONS

The complications of enteric fever are without number. Any disease may be accidentally associated with it, and no constitutional condition affords protection against it. Certain authorities assert that there is a close relation between *Scarlatina* and enteric fever. I can cite but one case in which the one disease ran into the other —

An Englishman, aged 22, passed through an attack of scarlatina of moderate severity in January 1888, and was still in hospital completely isolated and his skin still desquamating when, on the 3rd February, enteric fever set in with very severe initial symptoms. It ran a rapid and tempestuous course, wild delirium alternating with stupor between the 8th and 10th days. Characteristic diarrhœa was present, with rose spots, and gurgling and sensitiveness in the cæcal region. The temperature fell to normal on the 18th day, and did not again rise.

The complication with *Pneumonia* is so frequent that a definite relation between the two morbid conditions can hardly be doubted. Whether in a given case it forms a part of the morbid condition to which the name enteric fever is given, or appears as something superadded, it is occasionally the direct cause of death. But however severe both diseases may be, if they occur in a healthy subject, and both run a typical course, the prognosis is by no means bad.

*Enteric Fever Pneumonia Severe nervous symptoms Recovery*—Englishman, clerk, aged 32. Ailing for about 10 days. Sleepless, severe vertical headache, muscular pains, prostration, anorexia, brown baked tongue with red tip and edges, frequent bilious vomiting, yellow diarrhœa. For the last four days the stools have contained blood. Coughing.

Seen 2nd January 1876, assumed to be the 10th day of the illness. At the base of the right lung is an area about the size of the palm of the hand absolutely dull. It is with difficulty that the patient can be got to draw a long breath, when he does crepitation is audible. In the centre of the patch crepitation is coarse, finer towards the margins. At the edge of the dull area respiration is tubular. Marked immobility of right side. Patient cannot lie on the left. Sputa rusty.

Half a dozen rose spots round umbilicus. Gurgling and tenderness in right iliac fossa. Tongue as above described. Pupils medium, sluggish. Much muscular tremor. Respirations 40, pulse 100, temperature (4 P.M.) 103°.

The pneumonia was severe. Respiration varied between 40 and 50, pulse between 100 and 130 (on the 16th, 17th and 19th mornings falling to 84, 96 and 96 respectively, the corresponding breathing rates being 46, 40 and 48), temperature between 100° and 103° 8 in the morning, and between

101° and 105° at night On the 16th and 22nd mornings the temperature fell for a couple of hours to normal, without any corresponding general improvement Paroxysms of sweating were severe and frequent. On the 12th day about 2 ounces of pure blood was expectorated, and it is noted on the same day that the stools were like "meat-washings" Delirium, muttering, subsultus and indifference from the 13th day, fly-catching on the 21st day, when also he had 2 prolonged rigors Pulse hyperdicrotic On the 15th day it is noted "Base of right lung completely solid, unconscious of dyspnoea, pupils widely dilated and insensitive, muttering delirium during semi sleep, very distinct myocardial bruit"

Meanwhile the enteric fever pursued its course The stools were frequent and characteristic, there was distinct gurgling on palpation in the caecal region, whether there was tenderness could not be ascertained On the 17th day the following note was taken "Is constantly drowsy, but can hardly be said to sleep Constant starting of legs A touch on either sole causes a jump as though a shock from a battery had been given" A fresh crop of rose spots came out on the 18th day, the former having faded There was great abdominal distension The heart's action became extremely feeble towards the end of the third week On the 23rd day crepitation was again audible, and on this day there was a considerable loss of blood from the nose After this all the symptoms abated Delirium persisted to the 30th day, but by the 32nd day convalescence was established

The right lung is that most commonly and most severely affected, but inflammation may start in both at once, or in the second as the first is clearing It may be accompanied or preceded by severe *Pleurodynia*, or *Intercostal Neuralgia* with an eruption of *Herpes Zoster* over the corresponding nerve area It may arise late In one case I noted its commencement on the 21st day

*Bronchitis* can hardly be considered a complication as its occurrence is almost invariable I find but one case in which its complete absence is noted It is generally present from the first, or declares itself after a few days The characteristic expectoration is often tinged with blood

*Pleurisy* is rare in cases which recover In cases fatal by pneumonia the pleural cavities usually contain much blood-stained serum

*Pharyngitis* is a very common complication, indeed, I think always present to a greater or less degree, and therefore presumably to be ranged among the essential symptoms LUSCHKA's gland in the pharynx, though rudimentary under ordinary circumstances, appears to assume a temporary developmental action during the course of enteric fever In the earlier stage the mucous membrane covering it, and especially that covering its lateral portions, becomes congested, just as the mucous membrane overlying PEYER's patches does Later on, when the glands in the intestine are ulcerating, LUSCHKA's gland frequently ulcerates likewise, causing severe spontaneous pain, dysphagia, cough and blood-stained expectoration, partially occluding the posterior nares, whereby the mouth, always open for respiration, is kept dry, and perhaps contributing to the bronchitis and lung congestion common at this stage The nauseous smell often observed on a patient's breath is largely due to the condition of the throat

The pharyngeal condition sometimes involves great danger, and indicates profound poisoning

In one case, which terminated in recovery, ulceration of the back of the pharynx made its appearance on the 10th day, and slowly spread to the pillars, soft palate, and mucous membrane covering the hard palate, sloughs being thrown off, and deep gangrene seeming imminent for several days On

the 22nd day an abscess was found in the scrotum at the root of the penis This was incised and dressed antiseptically, but a deep slough formed, and the urethra was seriously threatened

*Laryngeal ulceration* is, I think, rare The voice is weak but seldom hoarse, and in my postmortem records I find lesions of the larynx noted only twice I must confess, however, that they were not always looked for

It would naturally be supposed that enteric fever attacking a person already advanced in *Phthisis* would run a severe and probably fatal course This, however, has not been my experience In fact, all the cases which have come under my care with this combination have by a singular chance terminated favourably

*Intestinal Hæmorrhage* is considered in the section devoted to symptoms

Even in cases where the most sedulous care is taken with regard to cleanliness and the avoidance of pressure, *Bed-sores* will occasionally occur some time about the end of the third week As a rule they do not greatly add to the patient's distress, as the same altered condition of the blood, which is an important factor in their production, has by this time induced indifference by its intoxicating effect on the brain But they add considerably to his danger They appear as livid patches on the parts most exposed to pressure—elbows, upper fold of the nates, and sometimes on the heels Unless they yield to treatment sloughs quickly form, and when detached lay bare the fascia or muscles, sometimes over a surface of 2 or 3 inches in diameter

*Parotid Bubo* is usually of fatal significance MURCHISON reports losing five cases out of six in which parotid bubo appeared, and quotes TROUSSEAU to the effect that a case scarcely ever recovers when pus forms in the depths of the parotid gland Recovery is certainly very uncommon I can cite but one case, and in this both glands suppurated The symptoms were throughout of extreme severity

Deafness was an early symptom (5th day) There was much drowsiness, the patient dozing for hours at a time with her eyes half open Delirium and subsultus on the 6th day When fully awake she complained bitterly of paroxysms of intense pain starting from the shoulders and radiating to the finger-tips, being particularly severe in the elbows The elbows were red, very sensitive to pressure, but there was no effusion into them and motion was free

At the end of the first week the lips were cracked, teeth covered with sores, face flushed purple, very stupid After the 10th day the temperature fell, but the nervous symptoms were unabated She was always restless, and the delirium was occasionally wild Her sense of smell became extraordinarily acute

On the 14th day she was vermin-hunting, and a crop of purpuric spots came out on the buttocks Her pulse was now running Cramps of leg muscles Constant shouting, all sorts of fancies as to where she was On the 15th day she complained of severe pain behind the jaw on the left side, and a deep seated hard swelling, very sensitive to pressure, was detected there Her temperature rose next morning to 103° 5 Left side of neck now brawny A similar swelling forming on the right side

Both glands were incised, each incision giving exit to a large quantity of pus, that from the right side "laudable," but that from the left, broken down and mingled with blood clots and small sloughs Convalescence set in shortly after the collections were evacuated

*Jaundice* (see section on SYMPTOMS) is probably present to a greater or less extent in all cases of average severity Occasionally, however, it is so marked as to assume independent importance I note only those instances in which it could be qualified as "deep," where the

skin assumed an olive tint and the conjunctivæ were intensely yellow, where also the onset of the symptom was not gradual. Of these I can cite nine, occurring respectively on the 5th, 8th, 10th (three cases), 11th, 14th, 17th and 44th day. Of these, those in which the jaundice declared itself on the 5th and 8th days, and two of those in which it was first observed on the 10th day, proved fatal, severe intestinal hæmorrhage occurring in three of the fatal cases.

Thus, out of nine cases in which "deep" jaundice occurred as a complication, four died, a mortality of 44.44 per cent.

It would also appear, though the cases are too few to support a categorical statement, that the earlier this complication arises the more fatal is its import,—

For out of five cases in which it occurred before the 11th day four died, a mortality of 80 per cent.

A case of *Acute Mania* occurring on the 10th day proved rapidly fatal.

A case of *Pyæmia*, in which on the 15th day the left shoulder and left knee were found red, hot, swollen, fluctuating, spontaneously painful and extremely sensitive to palpation, proved fatal on the 20th day.

The same patient suddenly became *Aphasic*, without paralysis of the limbs or face, on the 16th day, and continued in this condition for an hour. He recovered speech, but remained stupid up to his death.

I have seen two cases of *Ulceration of the Cornea*, one of which proved fatal.

In the case which recovered a small ulcer was observed on the 26th day at the outer edge of the left cornea, followed by three more a few days later. All four healed slowly, but the eye had not completely recovered until three weeks after the appearance of the first ulcer.

In several cases of enteric fever occurring among females, which I have elsewhere published, it was incidentally noted that the *Catamenia* were not arrested or materially affected by even the severest forms of the disease. In one case where the attack came on during the period of *Lactation*, and nursing was continued (against advice) through the entire course of the disease, the child appeared sufficiently nourished, and certainly received no injury. The milk supply was diminished but not arrested, and on the cessation of fever it again became normal in amount. In this case convalescence was established on the 18th day, and the highest temperature registered was 104° on the 5th, 7th, 12th and 14th days.

I have also published a case of early *Pregnancy* in which the temperature did not fall to normal until the 27th day, the highest temperature registered having, however, been only 103° 5. Pregnancy proceeded uninterrupted, indeed was not suspected until after the attack had passed by.

*Diarrhœa*, yellow and flocculent, occurred on the 7th day, and persisted. Muscular pains of extraordinary severity formed the most distressing symptom in this patient's case. There was but slight tympanites, no spots, but there were distinct tenderness and gurgling in the caecal region. The *catamenia* had been absent for two months, but as they had frequently been irregular on previous occasions no particular attention was paid and the fact was not mentioned. However, 230 days from the beginning of the fever a mature child was born. Pregnancy therefore dated from 50 days before the patient fell ill.

It so happens that this is the only instance in which I have met enteric fever in a pregnant woman, and I therefore draw no conclusion as to the general probability of pregnancy being undisturbed by the fever.

In persons who before contracting enteric fever have been impregnated with *Malaria* we are extremely likely to find the latent condition roused into activity by the newly imported disturbance. Thus, no doubt, are to be explained the symptoms of intermittent fever which often usher in enteric, but which are soon masked by those of the acute disease, and many of the intercurrent attacks of fever of intermittent or remittent form which frequently delay convalescence. If this hypothesis be correct, it must be admitted that the two forms of disease may strike at the same time, for the complication described not uncommonly presents itself in individuals who have but recently arrived in China, who have never lived in a malarious district, and have never suffered from any malarial affection.

Latent *Syphilis* is occasionally brought to light. Thus, I have published a case in which the patient having no motive whatsoever for deception assured me that for more than 15 years he had been completely free from any manifestations of a syphilis contracted 19 years before, and which had run through an ordinary course with marked secondary symptoms. He had been vigorously treated during three or four years with mercury and iodide of potassium, and had presented no tertiary symptoms.

On the 44th day of enteric fever of rather more than average severity an unmistakeable coppery eruption appeared on the chest and forearms. Next day there was œdema and lividity of the soft palate, swiftly followed by specific ulceration of the left anterior pillar. Within three weeks, during which the patient was treated with mercurialunction, and iodide of sodium internally (iodide of potassium inducing diarrhœa), the eruption disappeared and the throat recovered.

The combination of *Dysentery* with enteric fever is particularly fatal, not only on account of the double strain brought to bear on the victim's vital powers, but on account also of the grave hepatic complications which (I think) always present themselves when the two diseases occur simultaneously or run into one another. I do not, of course, here refer to the slight dysenteric symptoms which occasionally accompany the initial diarrhœa of enteric fever. It is not uncommon to discover ulceration of the colon in cases of apparently frank enteric fever, and ulceration of the lower end of the ileum in cases of seemingly uncomplicated dysentery. But there are groups not yet sufficiently studied in which enteric fever is grafted on to dysentery, and conversely. Either may precede the other. In two fatal cases in which enteric fever preceded I was unable to obtain a postmortem, but the symptoms pointed clearly to the presence of pyæmic abscesses, probably in large number, in the liver. In a third case, in which enteric fever followed immediately on dysentery,—

The autopsy revealed innumerable small abscesses in the liver, varying from the size of a pea to that of a Brazil-nut, so that any piece of the gland when thoroughly washed presented the appearance of a coarse meshed sponge. The colon was ulcerated throughout its entire extent, and contained a considerable quantity of altered blood. An ulcer in the cæcum had perforated. The lower end of the ileum was sown with circular ulcers in the midst of infiltrated areas, some of which had not broken down, corresponding to PEYER'S patches.

In such cases hæmatemesis is very liable to occur, and I am disposed to attribute it to rupture of varices of the lower œsophageal venous plexuses, which offer a ready receptacle for the blood of the portal system hindered in its passage through an encumbered liver. During inspiration there is a derivation of venous blood to the thorax, but under normal conditions this is relieved by the bronchial, azygos and phrenic veins, which are in communication with

the coronary vein of the stomach. When, however, the strain on the œsophageal veins is, as in cirrhosis of the liver and presumably in widespread suppuration, vastly increased, this relief may easily prove insufficient, the œsophageal varices may give way, and hæmorrhage into the stomach be produced.

### CONVALESCENCE AND SEQUELÆ

Convalescence is always gradual. The patient begins to sleep better and to feel refreshed by sleep, mental depression and indifference disappear. After an attack of ordinary severity weakness is profound and the body is left wasted to an extreme degree. Muscular strength, appetite and the power of digesting return slowly, while the process of recovery is apt to be interrupted by fugitive bursts of fever, the temperature sometimes suddenly rising to  $103^{\circ}$  or  $104^{\circ}$  for a few hours. These paroxysms are often coincident with the action of a laxative, which stirs up before expelling fecal accumulations containing undigested food which has fermented or putrefied. Many weeks elapse before recovery can be said to be complete, but after enteric fever, as after many other acute diseases, health appears to be established on a higher level than it had reached for months or years before the attack.

The course of convalescence is, however, often interrupted and lengthened. Crops of boils are a source of annoyance, but are not of serious import. Inter- and intra-muscular abscesses are not uncommon, forming rapidly and silently in the majority of cases, and reaching an enormous size before the skin betrays any sign of their presence. When within the substance of muscles they contain broken-down blood clot and fragments of tissue as well as pus, and are no doubt due to the degeneration of ZENKER. The affected muscles remain weak for a considerable time after the healing of such abscesses, but in all the cases which have fallen under my observation there has been complete recovery of function. Occasionally severe intra-muscular inflammation occurs, but does not proceed to suppuration. The deep inguinal glands sometimes enlarge enormously, and by pressure cause œdema of the lower extremity. Independently of this cause, œdema of the hands, feet and ankles usually supervenes as soon as the patient begins to move about and use his hands. This symptom finds a ready explanation in the persisting cardiac weakness and the relaxed (degenerated?) vascular walls, as well as in the anæmic condition, which otherwise betrays itself by pale lips and gums, breathlessness, and a soft or musical murmur at the base of the heart, obviously of hæmic origin. The myocardial systolic bruit usually present after the first week of fever, and which, although audible at base and apex, is more distinct at the apex, passes as convalescence advances into the musical systolic bruit just mentioned, which is most audible at the base. Both disappear as strength returns.

Periostitis of the long bones, of the ribs and sternum has been noted in several of the cases upon which this study of enteric fever is founded. The nodes may often be dissipated by treatment, but when they suppurate there is generally superficial exfoliation of the underlying bone and tediously protracted ulceration of the skin.

The following case was not under my care during the original illness.

8th November 1888. Clerk, aged 36.—Patient was in hospital from the 25th March to the 28th April 1888 with severe enteric fever. Before leaving he had pain in the lower left chest wall.

anteriorly, followed by a swelling which burst about the beginning of June, and has ever since gone on discharging two or three fluidrachms of serous and flaky pus daily. He has frequent attacks of fever of short duration, and the discharge increases before these attacks come on. His complexion is waxy and features puffy. Neither liver nor spleen is sensibly enlarged. Appetite good, bowels regular. Has not suffered seriously from his lesion until a few weeks ago, since which time it appears to him to cause slight attacks of spasmodic dyspnoea. Tongue brown, lorded. Temperature normal. Urine neutral, SG 1.015, straw coloured, with slight mucous cloud. Filtered, it gave no deposit on boiling or when treated with nitric acid in the cold. Boiled with nitric acid it turned a delicate and permanent pink.

Half an inch to the left of the middle line of the sternum and  $3\frac{1}{4}$  inches above the tip of the ensiform cartilage there is a fungating ulcer. The probe entering by the side of the excrescence passes backwards and outwards at an angle of  $30^\circ$  with the surface for  $2\frac{1}{4}$  inches, when it enters a smooth cavity. No dead bone felt. The exploration was very painful.

There was no sign of deposit in the lungs, and thus, along with the history and the patient's general appearance, negatived the suggestion of a tubercular abscess.

A semi-circular flap, 3 inches in radius, with its convexity downwards and its base extending horizontally from the inner edge of the left mammary gland to the middle of the sternum, was with the areolar tissue and muscle raised from the thoracic wall. The internal intercostals between the fifth and sixth costal cartilages were divided, when an abscess cavity was opened, of which the posterior wall was formed by new tissue matted over the pleura and pericardium. The fifth rib was carious for about an inch from its articulation, it was resected. The upper half of the anterior inch of the sixth rib was also carious, and was chipped and scraped away. The sixth cartilage was found to be calcified, and was excised. An abscess cavity was now found in the lower third of the gladiolus, containing much debris and pus. This was cleared out with a sharp spoon, and a counter opening made into it from the front of the bone. The cavities were thoroughly rubbed with iodoform, drained, and the flap replaced. Recovery was uneventful, but healing was not complete before the expiration of 10 weeks.

Among sequelæ referrible to the nervous system, I noted in one case, unique in my experience, the supervention of myopia (= 4 D), the refraction having previously been normal. Cutaneous anaesthesia and paraesthesiae of various kinds, affecting limited areas, such as the inner surface of one thigh, the soles of the feet, etc., frequently occur and persist for weeks. On the other hand, there may be sciatic pain of various degrees, sometimes sufficiently severe to cause lameness, muscular cramps, referred chiefly to the calves, or neuralgia, generally of the limbs.

Often after a severe and protracted illness a fatuous condition persists for several weeks, the patient remaining excitable, and incoherent when excited, emotional, easily moved to laughter and tears. Or he may become melancholic. Memory is weakened or almost abolished. There may be actual imbecility. Hallucinations, seldom I think of a terrifying kind, maintain restlessness. They present themselves either by day and night or only at night, and are sometimes recognised by the patient himself as illusions.

I once saw in consultation at another port a case of *Hepatic Abscess* which had declared itself during convalescence from a severe attack of enteric fever. The opinion was expressed that it was sequential to the intestinal lesions of the immediately precedent illness. But inasmuch as, so far as could be judged, it was a single abscess, and as the patient had for many years been deeply impregnated with malaria, it appeared more probable that its origin had been



malarial Diagnosis of its cause was further obscured by a history of prolonged dysentery 18 months before

Operation was recommended, but for some reason was not performed A month later I was informed that the abscess had burst into the bowel, and the patient shortly succumbed to septic absorption and purulent diarrhoea

This is the only case within my experience in which hepatic abscess could with any show of reason be attributed to enteric fever as its cause

### RELAPSE AND RECRUDESCENCE

The term relapse is commonly used to designate not only true recurrence with reproduction of all the characteristic symptoms of the disease, after a more or less prolonged period of convalescence from an attack which has run the usual course to fall of temperature and cessation of the primary symptoms, but also, in a loose sense, any reappearance, which is more than merely fugitive, of fever Clearly the former is the correct acceptation of the term, but the time which has elapsed between the close of the first period of high temperatures and the opening of the second, is an element the importance of which is differently estimated by different observers Thus, supposing a full fortnight of apparently final convalescence had passed, many would consider a fresh lighting up of fever accompanied by most or all of the symptoms observed in the initial attack as a relapse, whereas it might, and probably would, in fact, be due to the regular but slow development of lingering and unsuspected lesions in the intestinal canal Such a case would more properly be described as a "recrudescence," though it should answer to the ordinary test of a "relapse," namely, the recurrence of typical stools and perhaps of a typical eruption

Accepting this latter test, with its acknowledged imperfections, it may, I think, be said that true relapse of enteric fever is rare in China Convalescence, however prolonged, is usually definitive The following case appears to be a genuine instance —

*Enteric Fever Relapse after six weeks Recovery*—Forty-two days after the last record of a fever temperature in a case which had lasted four weeks, the patient began to experience loss of appetite, rapidly increasing weakness, sleeplessness and diarrhoea I saw her on the 6th day Her morning temperature was  $102^{\circ}5$ , evening temperature  $104^{\circ}$  Stools nearly watery, yellow, fetid Tongue normal Abdomen distended Slight tenderness to percussion in hepatic region Distinct gurgling The temperature ran as follows (falling at night for three days) —

6th to 10th day	Morning range	$102^{\circ}3$ to $103^{\circ}7$	Evening range	$103^{\circ}4$ to $104^{\circ}4$
11th „ 13th „	„ „	$100^{\circ}8$ „ $102^{\circ}8$	„ „	$103^{\circ}8$ „ $104^{\circ}1$
14th day	Morning temperature	$103^{\circ}5$	Evening temperature	$102^{\circ}8$
15th „	„ „	$102^{\circ}4$	„ „	$98^{\circ}2$
16th „	„ „	$101^{\circ}5$	„ „	$100^{\circ}9$
17th to 22nd day	Morning range	$98^{\circ}4$ to $99^{\circ}8$	Evening range	$98^{\circ}4$ to $101^{\circ}1$

The patient was deaf and occasionally delirious Dilated pupils throughout Two rose spots were discovered on the 10th day All through there was excessive perspiration The tongue varied from normal to extreme dryness The catamenia lasted from the 3rd day of the fever to the 13th Diarrhoea was characteristic There was intense prostration, congested pharynx, cough, headache, horrible visions Convalescence was established at the end of the third week

On the other hand, the following case presents merely the characters of repeated recrudescence —

Patient admitted on what was supposed to be the 10th day of an illness characterised by general malaise, severe spontaneous epigastric pain, sleeplessness, persistent fever, constipation alternating with yellow diarrhoea, loss of appetite, wasting

He was brought to hospital in collapse, referred by him, after reaction, to the violence of an attack of abdominal pain. There was no hernia, abdomen tympanitic, extremely sensitive all over.

Characteristic diarrhoea speedily set in, alternating with stools perfectly black, often solid, but generally liquid, dicrotic pulse, sleeplessness, temperature rising during the day from about  $100^{\circ}$  in the early morning to close on  $104^{\circ}$  at night. Spots were observed on the 12th day (*Primary period of fever*).

From the 25th to the 33rd day the morning and evening temperatures were below  $100^{\circ}$ , all the symptoms abated, and convalescence appeared to have set in. On the 32nd day a slice of chicken was allowed (*First interval*).

On the 34th day the afternoon temperature rose to  $102^{\circ}$ , and the entire train of symptoms speedily reappeared. Spots were observed on the 40th day. The temperature was frequently over  $104^{\circ}$ , but fell gradually from the 43rd day, reaching normal on the 55th day. Abatement of the other symptoms was not, however, so complete as before (*First recrudescence*).

From the 56th day to the 60th there was gradual improvement, with normal temperatures. The patient was kept on restricted diet (*Second interval*).

On the 60th day the afternoon temperature rose to  $102^{\circ} 5$ , and the characteristic symptoms, with the exception of the eruption, which was not observed, reappeared. This condition lasted to the 84th day, when a normal temperature, morning and evening, was again registered. The highest temperature reached during this period was  $103^{\circ}$  (*Second recrudescence*).

From this out there was no rise of temperature. But convalescence could not be said to have been established before the 93rd day. From the 80th day to about the 130th there was marked imbecility. For three weeks after convalescence began severe sciatic pain on both sides caused lameness, and a periosteal node formed on the chondral extremity of the fourth rib on the left side.

I have never met with a fatal case of relapse. That a second attack may however be attended by reproduction of all the original lesions, is attested by the following postmortem record,\* which I reproduce in default of similar material of my own —

Female, aged 21. Relapse two months after convalescence. Severe acute general peritonitis most marked about the viscera occupying the right iliac fossa. Both large and small intestines contained pale yellow, pea soupy liquid, but no solid faeces. Evidences of the original attack consisted of ragged ulcers with slaty base and undermined edges, partially cicatrised, situated in the caecum and adjacent 2 inches of ileum, and of an isolated typical "typhoid" ulcer 2 feet above the ileo caecal valve. The changes indicative of the recent attack consisted of vivid congestion surrounding for a variable distance the Peyerian patches here and there for a distance of  $4\frac{1}{2}$  feet up the ileum. The surface of the patches was greyish, on the same level as the surrounding mucous membrane, and covered by yellow adherent pseudo-membrane, the separation of which entailed no loss of substance. In one or two instances the pseudo-membranous film transgressed the limits of the patch and overlay the surrounding halo of congestion, notably so in the neighbourhood of the ileo caecal valve. The solitary follicles of the large intestine down to within an inch of the anus were prominent and surrounded by congestion, but nowhere ulcerated. The mucous membrane of both small and large intestines intervening between these lesions was softened and acutely inflamed. There was marked fibroid thickening of the wall of the caecum—at first sight

\* Transactions of the Pathological Society of London, xxxvi [1885], p. 196

suggestive of "growth,"—with matting together of the surrounding tissues. The mesenteric and retroperitoneal glands presented the same morbid condition. They were greatly enlarged, most of them hard and caseous, but some softened and acutely inflamed. The condition was confined to the abdominal lymphatic glands.

It may be questioned whether this was not a case of recrudescence rather than of true relapse.

Recurrence of enteric fever is certainly rare, so rare that it is currently believed that one attack protects the individual for many years, if not for his whole life. Two cases have, however, been recently recorded by practitioners in China, in one of which the disease recurred after 10 years, and in the other after four years\*.

### MODE OF DEATH

Death may occur at almost any period. Early, from the initial impact of the disease, the vital functions being overpowered by the poison before there has been time for the development of the ordinary symptoms. Late, from exhaustion, through continued molecular degeneration of vital organs. The earliest date at which I have seen death occur was the 8th day, and in that case I was unfortunately unable to obtain a postmortem.

In the majority of fatal cases one or other of the following conditions is the immediate cause of death. The patient may die in the collapse of sudden general peritonitis, preceded or not by perforation of the bowel or by the bursting of a suppurating mesenteric gland, or in the collapse of hæmorrhage, or from heart failure, or from the cumulative poisonous and hyperthermic action exerted on all the tissues, and notably on the blood, on the brain, and on the nervous centres regulating the circulation, respiration and temperature as well as secretion and excretion, or from pulmonary congestion and œdema, or from pneumonia, whether specific or merely intercurrent, and whether accompanied or not by pleurisy with serous (generally hæmorrhagic) effusion, or exhausted by colliquative diarrhoea, with or without repeated moderate hæmorrhages, or from septicæmia due to products of bowel destruction finding their way into the veins.

It is not uncommon to find a patient momentarily displaying an extraordinary amount of muscular strength a very short time before death.

### DIAGNOSIS

The solution of the problem of diagnosis must depend on a careful study of the symptoms in each individual case. In no instance will all the usual symptoms be found congregated. The early supervention of nervous exhaustion is a valuable indication, so also are dilatation and immobility of the pupils, with pearly sclerotics. Diastole of the pulse is exceedingly important, but doubt has generally disappeared before this is observed. The course of the temperature is an indispensable guide, but more information cannot, I think, be expected from it than I have indicated on page 56. Certain cases of acute miliary tuberculosis and of tubercular meningitis will occasionally deceive the very elect, but luckily these are of such

\* *Customs Medical Reports*, xxxiii, 19, xxxvii, 22

infrequent occurrence here that they need hardly enter into consideration. The distinction between enteric fever and severe remittent is of all the most obscure. Neither the history, nor the range of the temperature, nor the condition of the tongue, nor the nervous symptoms, including sleeplessness, delirium and stupor, if the case has been neglected, nor the frequent constipation, nor the splenic enlargement, will serve as a guide. Yet here accurate diagnosis is by no means merely a matter of scientific nicety. The heroic treatment for which remittent fever frequently calls is likely enough to be fatally mischievous in enteric. For my own part, I have seen at least one case of the latter disease in regard to which no doubt remains in my mind that the patient was poisoned with quinine. Thus, the compound term "typho-malarial fever" which has arisen out of the mysterious connexion between remittent and typhoid has done incalculable mischief. Not only does it crystallize a pathological doctrine which is no better than a surmise, and which in all probability is utterly wrong, but it suggests a line of treatment which is generally distinctly hurtful. At the commencement of a fever, intense depression out of proportion to the period of the illness, pale and puffy features, pearly sclerotics, sleeplessness, headache and vertigo, which very frequently usher in the more characteristic symptoms of enteric, should rouse strong suspicion when the indications of the thermometer are doubtful. At a slightly more advanced stage the maximum temperatures will be found higher in malarial than in enteric cases, and the daily temperature curve composed of long waves instead of short ripples, the liver is more frequently enlarged and painful, bilious vomiting is more frequent, the stools frequently contain an excess of bile, and tympanites is uncommon. Doubt is not long justifiable, the uselessness of quinine is manifest within two or three days, and if by chance the patient should be constipated, his extraordinary susceptibility to the action of a laxative is at once suggestive of commencing enteric fever. Indeed, the diagnosis is commonly fixed before the temperature curve has run long enough to exhibit the difference between the frequent short rises and falls which occur each day in enteric fever and the regular daily ascent and descent in remittent.

It is essential to note that the symptoms marking the onset of enteric fever may be subjectively indistinguishable from those that make up the chronic "seediness" which is occasionally the reward of habitual drinking. Loss of appetite, sleeplessness, horrible visions, foul tongue, thirst and deranged bowels, with perhaps mucous or bilious vomiting, are regarded as natural incidents of periodical recurrence, they give rise to no suspicion of any special significance, and often the second week of enteric fever is reached before advice is sought.

### PROGNOSIS

There is probably no disease in which recovery so frequently takes place from a condition so desperate as is often encountered in enteric fever. On the other hand, there is no disease in which the mildness of symptoms may prove more deceptive. Prognosis is therefore always doubtful. This much is certain, that it can never be based on excessively exaggerated temperature in the early period of the disease, nor upon moderate temperature in the later periods. I have the histories of three fatal cases in which the temperature, taken every three hours, never exceeded  $102^{\circ}5$ . There is hardly a symptom at any stage, not even excessive

hæmorrhage, that is by itself of absolutely fatal import. Deep jaundice occurring in the first 10 days is of exceedingly bad augury. Out of five such cases, four died, a mortality of 80 per cent. A high internal temperature with cold surface is usually, but not always, of fatal significance. Of four cases in which large disorderly movements of the hands were observed, three died, or 75 per cent. Finally, four cases of tetanic contraction of the neck, back and extremities (one case), or of the arms alone (three cases), all died. Apart from these symptoms, which are fortunately of infrequent occurrence, it is only after considering the daily range of the temperature and the number of hours during which it remains at a high level, carefully reviewing the condition of all the organs, estimating the power of resistance remaining to the nervous system, the integrity of the muscular structure of the heart, the functional activity of the liver, spleen and kidneys, and the extent and depth of the destructive process in the bowel, that a probable opinion as to the future can be expressed. And even when this is altogether favourable, it must not be forgotten that a pin-hole ulcer may be on the point of perforating the intestine and changing the entire aspect of affairs within an hour. It is evident that pre-existent disease of the heart, or of any viscus, is of evil omen for the prognosis. There are certain indications of imminent death, such as expressionless features, eyes widely open gazing into vacancy, lower jaw fallen, complete wakefulness with absolute indifference or insensibility to every impulse that may possibly arise from within or from without, body cold and bathed in sweat, hardly perceptible pulse and respiration. But these are obvious signs of the final agony, and need no skilled interpretation.

#### PATHOLOGY

In dealing with enteric fever we are no doubt brought face to face with fermentative and putrefactive processes, but whether these are of one kind only, or are set going in many and various directions at once, and whether differences of type in the enteric affections which we have hitherto classed together under "enteric fever" correspond to differences in the fermentative germs, or merely to differences in the environment into which such germs are introduced, are questions which for the moment are insoluble. It is now widely believed that enteric fever is caused by a specific micro-organism. But EBERTH'S bacillus has never been identified in India, and never, so far as I know, in China. I myself have diligently searched for it, but without result. In India, again, there is a growing belief that one of the fevers prevalent in that country, though symptomatically indistinguishable from enteric fever, is characterised by intestinal lesions differing from those of that disease, and, therefore, presumably due to a different agency. Wide experience in China leads to a like conclusion (see MORBID ANATOMY). But even further, certain Indian observers hold that cases of fever may show bowel lesions identical in general aspect with those of true enteric fever and yet not be due to the specific cause which produces the latter.\* It seems, however, in the present state of knowledge, to be a wanton introduction of confusion to promulgate the doctrine that, although among the forms of continued fever occurring in Europe and America specific enteric fever is the only one characterised by the presence of intestinal lesions of a peculiar type, it is an open question whether this should hold good for cases occurring elsewhere. However

\* *Twenty fifth Annual Report of the Sanitary Commissioner with the Government of India*, p. 27

this may be, those who are familiar with the clinical and anatomical features of genuine enteric fever in European countries will not fail to recognise that disease in the account here given of the symptoms and morbid anatomy of the affection which passes as enteric fever in China

If non-specific irritation be invoked as the cause of certain cases of fever indistinguishable from enteric, then it must be confessed that in a considerable number of instances enteric fever as verified by autopsy does seem to take its rise from a chill or from the eating of subsequently suspected meat. I have published such cases in the Chinese Customs *Medical Reports*. Here we must first make allowance for mere coincidence. But as a far larger number of cases appear to be related to such accidents than the doctrine of chances will explain, and as we cannot admit that different causes can give rise to specifically identical effects, we are forced to assume that at least in some instances incriminated meat has come from animals infected with enteric fever,\* or that, under some elementary influence common to all the apparent causes, pre-existent indifferent micro-organisms are transformed into the organism which causes enteric fever. This latter explanation is purely hypothetical, and so far altogether unsatisfactory.

The "typhoid state" is occasionally developed so early that there must be another cause for it besides prolonged high temperature, or absorption of transformed products of increased bodily waste, or septic invasion of the blood by fluids furnished by the intestinal ulcers, or a combination of all these factors. Intercurrent falls of temperature, even when prolonged, are often without any effect on the general condition, and the other causes assigned demand a longer time for the manifestation of their action than the histories of such cases as I now refer to permit us to assume. This residual cause can be no other than a chemical poison or more than one, secreted or elaborated by the germ or germs. What, therefore, appears really essential is the recognition of the intoxicating product, whatever it may be, before it has induced destructive organic lesions. This recognition must necessarily precede any but empirical attempts to arrest the destructive action before it has advanced beyond the stage of irritation or congestion, for it is certain that in any given case the germs must be in full activity before their presence is manifested. The mere identification, no matter how certain, of a specific germ would, therefore, not advance matters much on the side of profitable treatment, however interesting it would be from a scientific standpoint, and however important from the point of view of preventive medicine.

#### MORBID ANATOMY

I have no intention of describing the morbid anatomy of enteric fever as though I were writing a text-book. What follows is designed mainly to show that the lesions discovered postmortem are essentially the same as those encountered in cases of enteric fever examined in Europe and America. The importance of this lies in the fact, already often mentioned, that in China many cases of what is certainly enteric fever are diagnosed as "remittent" or "typho-malarial," and are consequently treated in a manner which does not conduce to recovery.

\* On the occurrence of enteric fever among animals, see GRIESINGER, *Traité des Maladies infectieuses*, p. 238 (French translation, 1877). Also *Transactions of the Pathological Society of London*, xxxvi [1885], p. 527.

The first striking general notion obtained from studying the morbid anatomy of enteric fever is, that there is no assignable ratio between the severity of the symptoms observed during life and the extent or depth of the lesions to be expected after death

Reference has been made to the extraordinary and puzzling variety in the grouping of symptoms encountered in enteric fever, a variety so great as to suggest that more than one disease may be included under the term. Yet when the postmortem records of fatal cases are confronted with the clinical reports we find as an almost invariable rule that to the multiplicity in symptoms there corresponds an essential unity in the organic lesions. On the other hand, it occasionally happens that a case proceeds in close conformity with the acknowledged type, but the lesions discovered after death, though sufficient to explain the symptoms, are not those which we associate with enteric fever. This is illustrated by the following extracts from the postmortem records of two cases recently observed, in which the course of symptoms was strictly in accordance with the average course of "enteric fever." The fever no doubt was enteric, but not in the special sense which we attach to that qualification.

CASE I—Death occurred on the 24th day \* \* \*. On opening the abdomen the transverse colon was enormously distended with gas, its inferior border reaching to within 4 inches of the pubes. There was no general peritonitis. The liver was slightly enlarged and dipped with blood on section, it weighed 65 ounces. The gall bladder was tightly distended with olive green fluid. The spleen was enlarged and very friable, presenting two large yellow, broken-down pulpy infarcts at the upper end of its posterior border. Kidneys overfilled with blood, otherwise normal. The bladder contained a few ounces of very slightly albuminous urine.

The ileum was injected on its peritoneal surface. The last 6 inches of its mucous membrane was soft and œdematous, ecchymosed in large patches. There was no ulceration or infiltration of PEYER'S groups, but the upper surface of the ileo cæcal valve and the mucous membrane adjoining it were gangrenous and black. There was no perforation. There were no adhesions round the cæcum. The mucous membrane of the cæcum was deeply injected, and the cæcal surface of the valve was, like the ileac surface, gangrenous. The serous surface of the ascending colon was injected. The bowel contained a considerable quantity of apparently normal fæces. The mucous membrane as far as 2 or 3 inches beyond the hepatic flexure showed extensive patches of ecchymosis.

CASE II—Death occurred on the 22nd day \* \* \*. The peritoneal cavity was distended with gas free from fecal odour. On incision there was a profuse escape of turbid, yellow fluid. The diaphragm was arched into the chest, its peritoneal surface deeply injected, and patches of lymph here and there over it. Surface of stomach, of small intestines and of colon injected,—purplish. The stomach was enormously distended with gas and fluid. The colon was also much distended. The great omentum was rolled up and tucked under the lower border of the transverse colon. The small intestines were distended, and glued together by flakes of recent and bands of organised lymph. Flakes of thick pus were scattered widely over their surface. The parietal peritoneum was injected, but there was no lymph deposit on its surface. The liver extended from the fourth interspace to the costal border in the nipple line. Its tissue was soft, but not abnormal to the naked eye. It weighed 74 ounces without having been drained but after the escape of a considerable amount of blood during its removal. The gall bladder was empty. The spleen was swollen and soft, covered with lymph in flakes, bathed in pus derived from a partially localised collection behind and internal to it. It weighed 12 ounces. The posterior peritoneal surface of the stomach was deeply injected, covered with flakes of lymph. It aided in enclosing a magma of broken down pus and lymph, serum and effused blood, which was retained by rather loose adhesions between the stomach, spleen and pancreas. The left extremity of the greater curvature was fringed with organised lymph in pieces from  $\frac{3}{4}$  inch to 1 inch long. There were large-

ecchymoses on both mucous surfaces. The stomach contained a blood-stained turbid fluid. There was no perforation and no ulcer. There was no noteworthy enlargement or hardening of the mesenteric glands. The lower 18 inches of the ileum presented a vast number of solitary ulcers with central slough not yet separated. These were strictly limited by the ileo-cæcal valve, in the neighbourhood of which they were most thickly set. There was no perforation (water test under high pressure). There was no ulceration or even infiltration of Peyer's patches. The small intestine contained, besides an enormous quantity of gas, a little bloody tenacious fluid. The serous surface of the cæcum was much injected. The appendix vermiformis was normal. There was no evidence of any localised inflammation in the pericæcal region. The posterior cæcal glands were not in any way enlarged or distended. The large intestine was injected on its serous surface. Its mucous membrane was smeared with blood-stained fluid, here having a green tinge, when washed it appeared normal. The kidneys were very slightly congested.

I have detailed the preceding exceptional cases for the sake of completeness, and more especially with the view of contributing to the body of facts destined eventually to justify or upset whatever theories may from time to time be put forward with regard to the nature of enteric fever in the East.

Turning now to ordinary cases, I have no records of postmortems made during the first week of the disease. The skin is usually parchment-like, showing ecchymoses in the supra-clavicular regions, on the abdominal wall, thighs and ankles as well as on the dependent parts of the body. For about 24 hours after death the surface retains a certain amount of heat.

For instance, 21 hours after death, the average temperature of the air having been 40° F, the temperature of the skin of the abdomen (surface thermometer 10 minutes in position) was 50°.

The duration of rigor mortis is variable.

I have noted it "strong" 7½ hours after death, "very strong" 17½ and 21 hours after death, and "passing off" after 9 hours.

There is often a discharge of bloody and frothy fluid from the nose and mouth. The muscles are usually dry on section. The blood is fluid throughout the body, with little or no tendency to coagulate. The diaphragm is generally strongly arched into the chest, and in cases of general peritonitis the pleural surface of the diaphragm is commonly inflamed in patches corresponding in position with the inflamed areas on the peritoneal surface. The pleuræ usually contain bloody or citrine-coloured serum in small (sometimes in very large) quantity. In such cases there are always patches of pleuritic inflammation, with or without lymph deposit. The lungs may be perfectly healthy, or in any stage of pneumonia, or passively congested and œdematous. Septic infarcts are sometimes found in one or other of the (lower) lobes. The bronchial mucous membrane is injected and often smeared with muco-purulent secretion. The bronchial glands are almost invariably enlarged and hard. The pericardium is generally normal as to its surfaces. In cases fatal by pneumonia it contains straw-coloured or pink serum (4 fluidounces in one case).

The heart may be to all appearance perfectly normal even as late as the middle of the third week. But generally its muscular tissue is soft, dead-leaf colour, and often dotted with minute yellow spots. The cavities may contain no blood, or either side may be full or distended. Coagula are often found, postmortem or of older date, if formed during life they are (I think) most likely to be found in the right ventricle and left auricle.



In certain of the muscular fibres fatty or vitaceous granular bodies replace the striations, producing what has been described as segmentary dissociation. There is a great increase in the number of the muscular nuclei, and pigment granules are distributed among the fibres. The interstitial tissue contains multitudes of small round cells and free leucocytes as well as much granular exudation. Fibres in a perfectly normal condition are found side by side with others in which degeneration is far advanced.

The endothelial surface of the great vessels is often stained with the colouring matter of the blood.

On opening the peritoneal cavity there will generally be found more or less peritonitis, and often general inflammation. The cavity is sometimes distended with gas, even when there is no perforation. There may be no effusion, or much, sometimes blood-stained, or yellow and turbid. If there has been perforation or an approach to perforation the intestines will be found matted together by lymph and false membranes round the seat of the accident. The serous surface of the bowel may be inflamed universally or in patches. The intestines are usually distended with gas and bulge into the incision. On filling them with water under pressure a minute perforation is sometimes brought to light which would otherwise escape notice.

I was once present at the autopsy of a case of enteric fever where the peritoneal cavity was distended with gas and contained much faecal liquid as well as pus and lymph. Water pressure detected a pin-hole aperture, which under mere inspection would probably not have been seen. It was in the middle of an inflamed PEYER's patch, 12 inches from the valve, and, with the exception of one other patch which was merely congested, the rest of the intestine was apparently healthy.\*

But in almost every case, at whatever period after the first week it may have proved fatal, all the stages of morbid alteration in the intestine are present. On opening the digestive tract from the termination of the oesophagus to the anus, thickening and injection in small circular patches of the mucous membrane of the stomach will probably be noticed. These patches are mostly found on the posterior surface, and they may be the seat of very acute inflammation or of ecchymosis. The stomach is often largely inflated, and its serous surface injected, even when there is no general peritonitis. The small intestine will be found to contain yellow fluid faeces, or perhaps blood and putrid liquid. The mucous membrane of the duodenum may be intact or irritated, and it is not uncommon to find one dead lumbricoid worm or more in this section of the bowel. A few solitary glands in the jejunum may be inflamed. But the characteristic lesions are to be found in the ileum, nearly the whole surface of which may (rarely) be studded with solitary ulcers. As we ascend the bowel from the ileo-caecal valve, where the lesions are usually the most advanced, following the surface opposite the mesenteric attachment, we come upon elliptical areas of infiltration of PEYER's patches, and anywhere on the bowel surface infiltrated solitary follicles, both manifest to sight and touch as elevations more or less hard, but covered with mucous membrane little if at all altered. For the most part below these, or sometimes

\* Long ago RILLIET and BARTHEZ, and HENOCHE, when treating of typhoid fever in young children, described cases wherein, although all the most characteristic symptoms of enteric fever were present, the postmortem signs were limited, so far as the abdominal viscera were concerned, to enlargement, softening or disintegration of one single PEYER's patch, or to a superficial and apparently trivial inflammation of the mucous membrane of the large and small intestines (*entérite typhoïde*, R and B). "We must, therefore, conclude that pathological alterations may be very slightly developed, or even altogether absent, without this fact authorising us to deny that a given case was one of typhoid." (HENOCHE)

surrounding them, are patches in various stages of inflammation, hæmorrhagic infiltration, sloughing and ulceration, the sloughs bile-stained, small or extensive, superficial or extending deeply into the muscular coats, or to or through the serous coat. The ulcers are ragged-edged or sharp-cut with undermined borders and worm-eaten, pulpy, grey or blood-stained surfaces. The patches not yet ulcerated, or only superficially ulcerated, are pale or injected. A section made through such a patch at right angles to its surface reveals an underlying firm yellowish-white layer, of variable depth. The ulceration becomes more and more general as we approach the valve. It may be strictly limited by the valve, which may be almost eaten through, although the cæcal surface and the mucous membrane of the entire colon may be intact. Occasionally PEYER'S patches to a great extent escape, and the surface of the bowel is thickly set with sloughing solitary glands. Here and there we may find ulcers in which a process of repair had begun by the downward inflexion of the edges and the formation of granulation tissue, the first steps towards cicatrization. We may also find, chiefly at the highest limit of the lesions, small patches still infiltrated, but which are undergoing a process of retrogression. Thus almost every autopsy presents a more or less complete history of the nature and course of the morbid process in the intestine.

The infiltration of PEYER'S patches and of the solitary glands consists, when slightly advanced, in a rich cellular proliferation and development, wherein the adjacent mucous membrane usually shares, so that the elements of the mucous membrane are fused with those of the glands. A vertical section through a patch brings to light a somewhat dense layer of variable thickness, made up of masses of embryonic cells embedded in an amorphous substance. Of these cell masses some will be found undergoing fatty or granular, not caseous, degeneration, and here and there minute sloughs will be seen where the infiltration has obliterated the capillaries.

Commencing at a distance of about 5 mm from the edge of an ulcer the peritoneal coat is thickened and cloudy. The longitudinal muscular fibres are dissociated, and infiltrated with round cells, which are also thickly scattered between the transversely cut fibres of the circular coat. Minute hæmorrhages are here and there visible among the bundles, the capillaries are greatly enlarged, and the vascular walls are abnormally friable, as shown by torn (or spontaneously ruptured) vessels in otherwise perfectly successful sections. Occasionally, however, an area of normal muscle is to be found. The areolar coat is the seat of innumerable small hæmorrhages, and its meshes are thickly strewn with round cells, which are among the lymph corpuscles, many of which appear to be proliferating, and the majority of which are deformed. Even where the muscular and areolar coats are already deeply infiltrated with round cells perfectly normal villi may be seen projecting into the lumen of the bowel. As the ulcer is approached the bases of the villi are thinned and invaded by round cells, several villi are fused together, exhibiting irregular masses of deformed cells, amorphous particles and minute blood extravasations on the free surface of the membrane. The crypts of LIEBERKUHNS are swollen and filled with round cells, then gradually disappear along with the villi. They and the swollen solitary and agminate glands become crammed with nuclei, and are fused with the interstitial tissue, a free space usually occupying the centre of each follicle, the vestige, no doubt, of a minute abscess.

Coming to the ulcer itself, one first notices complete disorganisation of the structures of the bowel at its edge. The normal elements have almost totally disappeared, their remnants being mingled together, while multitudes of deeply stained nuclei (logwood) seem to form the wall of the ulcer. The muscular coat is represented by a few muscle cells. Scattered festoons of curled up fibres, along with short segments derived from the remnants of the circular coat, are the traces of the areolar layer. At the point of perforation, when perforation has occurred, sprays of elastic fibres entangling large, flat, granular, nucleated

cells, the endothelial cells of the lymph sinuses, protrude on the peritoneal surface. In each field all these elements are present in inextricable confusion. An empty vessel is here and there visible, here and there also hæmorrhagic clots and groups of fat cells. On the peritoneal surface at the edge of the perforation minute nucleated cells are heaped up. On the mucous surface the border of the ulcer is undermined, agglomerations of round cells projecting so as to overhang the cavity beneath from which the slough has been cast out.

The colon is generally distended with gas, and may contain vast quantities of undigested curd. It may be perfectly normal, deeply congested or strewn with ulcers.

The solitary glands undergo a process identical with that which attacks the glands of the small intestine. When they ulcerate several may coalesce into a single patch, and series of these patches are often found extending as far as the splenic flexure or down as far as the rectum. The cæcal surface of the valve and some of the patches in the colon are occasionally gangrenous. The retro-cæcal glands are generally indurated and enlarged, and sometimes suppurating.

The mesenteric glands are swollen and hard, or soft from breaking down of their contents. On section they exude a pinkish-brown purulent fluid, and contain sloughs which readily shell out of the capsule. They vary in size, the largest I have seen were somewhat bigger than a Brazil-nut. Although they are most affected in those portions of the mesentery which correspond to the profoundest intestinal lesions, they have undergone change also in regions where the adjacent bowel shows no sign of morbid alteration. It may, therefore, be inferred that their implication is mainly primary, and only in part due to infection from the intestinal surface. This conclusion is supported by the frequent occurrence of an identical process in the bronchial glands, pharyngeal tonsil, etc.

Selecting a gland in an early stage of induration, it will be found that the swelling is due to cellular infiltration and overgrowth of connective tissue.

The liver is generally but slightly enlarged, its weight varying between 60 and 75 ounces. I have seen its surface coal-black. It is often hyperæmic, dripping with blood on section. To the naked eye the surface of a section appears singularly uniform and greasy, usually of yellowish-brown colour.

On minute examination the vast majority of the hepatic cells are, in advanced cases, found swollen, and in a condition of granular or fatty degeneration, the nuclei having disappeared, or at all events become invisible amid the oily contents of the cells.

The gall bladder is frequently tightly distended with bile, but is occasionally quite empty. In one case I found a minute ulcer on its mucous surface. The spleen is enlarged, its weight varying between 11 and 16 ounces. I have never found it increased as NIEMEYER describes it to "from twice to six times its natural size," nor is the degree of its increase any measure of the severity of the disease. It is always friable, often reduced to mere putrilage, containing yellow broken-down pulpy infarcts, chiefly towards its posterior border.

In the spleen the positive morbid appearances are chiefly enlargement of the Malpighian bodies and crowding of the softened pulp with small round cells and yellowish pigment granules.

The kidneys are commonly enlarged, often dripping on section. By squeezing the papillæ one can obtain a considerable discharge of greyish catarrhal liquid.

The renal epithelium, in limited areas of the cortical and pyramidal portions, is granular, the nuclei invisible, and in certain portions the outline of the cells themselves indistinct or altogether undeterminable. Degeneration is always, or at least generally, more advanced in the cortical portion than in the pyramidal.

The voluntary muscles I have not examined microscopically. But from the occasional occurrence of intra-muscular hæmorrhage and suppuration, as well as from the intensity of muscular weakness during the early stages of convalescence, it is probable that their fibres undergo granular or waxy degeneration identical with or similar to the forms described by ZENKER. Their degeneration may indeed be assumed *à priori* whenever the bodily temperature remains for a prolonged period at a high level.

I have examined the brain in only four cases of enteric fever, and in none of them with much result. In the first case, fatal on the 22nd day by pneumonia, there was no noticeable alteration. In the second, fatal by heart failure on the 30th day, the convolutions were œdematous, and there was about a fluidrachm of serous fluid in each lateral ventricle. In the third and fourth, death occurred on the 29th and 32nd day respectively, from septic absorption and exhaustion. In the first of these the convolutions were abnormally dry and shrunken, in the second the brain was œdematous.

Sections from the cortex were carefully examined in all. In the first and third, where the brain appeared unaltered or shrunken, I made nothing out. In the two cases where the tissue was distinctly œdematous the perivascular lymph spaces were seen to be crowded with small corpuscular bodies, several nerve cells were masked or distorted by aggregations of the same bodies, while others appeared to contain two or more nuclei.

The condition of the spinal cord I have never investigated.

#### TREATMENT

The indications for treatment are generally simple.

Whoever sees in the *Temperature* the chief or only enemy to be combated will use cold baths, large doses of quinine, and the modern antipyretics. For my own part, whenever the temperature has been high enough to suggest the cold bath, I have found in the condition of the heart a sufficient contraindication. Here alcohol by stimulating the flagging cardiac muscle, and thus driving the blood through the pulmonary and surface capillaries, does a double service. It has for this reason always appeared to me to be the safest and most reliable antipyretic. Quinine has singularly little effect in lowering the temperature, and it has the disadvantages of aggravating headache, promoting delirium, diminishing any slight desire for food that may exist, and increasing diarrhœa. But when the coincidence of malarial and enteric fever is suspected a test dose of quinine (15 grains) may safely be administered. If this reduces an anomalous temperature curve to enteric form, then, and in that case only, quinine should be persisted with (unless it proves hurtful) until the curve becomes normally enteric. When this result is attained quinine is no longer of use. Such cases demand specially careful supervision of the temperature chart. Antipyrin I have found mainly useful in controlling the often agonising headache. Antifebrin I have never administered, but I have seen sufficient of its effects in producing cyanosis and cardiac distress, while its antipyretic

virtues are only temporary, to satisfy me of its uselessness and to make me suspect its safety. The official solution of acetate of ammonia is often of use when the skin is dry and pungent and the tongue baked. Given with lemon juice and a little syrup it is sufficiently agreeable, and it seldom fails to soften the tongue and induce gentle perspiration. It also tends to strengthen and steady the heart's action.

The amount of *Sleep* obtained must be carefully investigated at every visit. A patient is not asleep because he lies in a somnolent and indifferent state, and unless the nervous system is periodically rested by natural or provoked sleep, a condition resembling delirium tremens is induced, sufficient of itself to cause death. A gentle stimulant at night is usually effective. When this fails, chloral, with which it is wise to combine digitalis, should be given in divided doses. Tepid sponging of the whole body has a distinctly sedative effect, and where the cause of sleeplessness lies in intense headache which antipyrin has failed to relieve, a douche of cold water over the head will generally afford sufficient relief to admit of sleep with or without chloral. If everything else fails, recourse must be had to subcutaneous injections of morphia.

I have very rarely found it necessary to treat the *Diarrhœa* by astringents. In fact, when this symptom is urgent the administration of a simple enema by causing the expulsion of masses of putrid stuff with fecal lumps or undigested food, removes what is in great measure the cause of the flux. Should it, however, continue urgent a starch and laudanum enema or a subcutaneous injection of morphia will rarely fail to reduce it within reasonable bounds.

The *Constipation* which frequently replaces or alternates with diarrhœa is best met by enemata of warm water, to which castor oil may if necessary be added. One or two evacuations of the bowels should be secured daily. During convalescence, when there is almost always constipation or ineffectual emptying of the bowel, it is from time to time necessary to administer gentle saline laxatives in order to clear away the fermenting debris of imperfect digestion.

To control *Intestinal Hæmorrhage* nothing has in my hands equalled the watery extract of *Hamamelis virginica* sold under the name of "Hæzeline." I have published several cases of enteric fever and of dysentery in which the effect of this drug in arresting violent bleeding from the bowel could not reasonably be doubted. The doses should be large—at least 4 fluidrachms every two hours.

When the patient has become too weak to change his position without assistance and too indifferent to notice the increasing inefficiency of his respiratory movements, special attention should be paid to rolling him gently over for half an hour at a time, alternately on one side and the other, supporting his back with pillows packed behind it. So far as lung congestion depends on mechanical causes, the chance of its occurrence is materially lessened by this simple precaution.

In one case, in a fragile lady, as early as the beginning of the second week, when moderate pulmonary congestion had existed for a couple of days, the smaller tubes and air-cells throughout a large portion of both lungs suddenly filled with fluid. Suffocation was imminent, and although prostration was extreme the administration of an emetic appeared to be the only way out of the difficulty. Accordingly I gave a sulphate of zinc emetic, the effect of which was the evacuation of an incredible quantity of mucous serous fluid from the tubes, and immediate relief to the breathing, with disappearance of cyanosis. Collapse,

however, swiftly followed Ether hypodermically, brandy by the bowel, and a large draught of champagne as soon as the patient could swallow, dispelled this danger, and the case terminated in recovery

The occurrence of *Bed-sores* should always be anticipated and guarded against When they threaten, frequent sponging of the reddened skin with camphorated spirit, while a water-cushion is placed under the suspicious spots, will often serve to avert them If in spite of these precautions they do occur, they should be sponged two or three times a day with a dossil of cotton soaked in red wine, and then covered with zinc ointment spread on lint, a water-cushion being now indispensable

As prostration and indifference deepen attention must at every visit be paid to the condition of the bladder Here I have but seldom noted retention of urine, but it has occurred I assume that there is no danger of mistaking overflow for involuntary evacuation

In the later stages of the fever abdominal distension is sometimes very distressing, and may reach such an extent as to exert menacing pressure on the diaphragm But even under these conditions, the use of the long tube which is strongly recommended by many authors should be adopted with extreme caution Deep lesions of the large intestine often extend so far down that should one unluckily fall on such a case perforation of the wall of the bowel with the tube would in all probability occur Hot-water enemata, turpentine fomentations, and the administration of minute doses of turpentine by the mouth, generally give relief, and can do no mischief

The administration of dilute hydrochloric acid (to the extent of a fluidounce in 24 hours) has been extolled by several writers I have never seen the least effect on the fever or other symptoms that could reasonably be attributed to its use But largely diluted and judiciously flavoured it forms an agreeable beverage, of which, however, most patients soon tire

The time for quinine comes late During convalescence, when the morning temperatures are normal or subnormal, there may be a rise to  $100^{\circ}$  or  $101^{\circ}$  between 6 P.M. and midnight One large daily dose of quinine is at this stage invaluable

It has never seemed to me advisable to administer alcohol in the enormous quantities recommended by some authorities A flagging heart may often be stimulated by a moderate dose of wine or brandy, and a rising temperature controlled by the same means A baked tongue will frequently become moist under its influence But the occasions must be rare in which more than 4 or 5 ounces of brandy or an equivalent quantity of wine is necessary Weak claret and water is almost always agreeable, and is certainly never hurtful, it stimulates appetite and digestion A draught of wine-whey or a couple of ounces of milk-punch given at night will often induce sleep, and when not specially contraindicated is certainly preferable to chloral or morphia

Much comfort is derived from sponging the entire body two or three times daily with tepid water to which a little aromatic vinegar has been added I have often noted a fall of from half a degree to  $1^{\circ}$  in the mouth shortly after this partial bath

The periostitis and glandular enlargements of the convalescent period are best combated byunctions of mercurial ointment morning and evening The gums are of course inspected every day, but I have frequently been struck by the tolerance of mercury in such cases when

administered in this way Opium in large doses and saline laxatives have given speedy and excellent results in cases of melancholia and of hallucinations

The *Diet* is all important, both as regards its nature and its total daily quantity Enteric fever patients should from the first be fed every three or four hours day and night in small quantities at a time Milk can generally be borne, and when it can it must form the chief part of the nourishment given But it should be remembered that the dense curd of undiluted milk often proves extremely difficult of digestion,\* that the patient is generally losing by perspiration large quantities of blood salts, and that the vegetables and fruit which form part of the diet of health are omitted from the ordinary diet of enteric fever Hence it is advisable to add a little gelatine to the milk, or to dilute it with one or other of the mineral waters, lime water, rice water or barley water, or with a strong broth (strained and skimmed) in which bread and vegetables have been boiled A mixture of equal parts of milk and of the broth just mentioned, suitably seasoned, is generally readily taken, and represents an almost perfect food. If the mixture is refused the broth should be given alternately with milk Peptonised milk is sometimes absorbed when milk in its natural state obstinately resists digestion Lemon juice or orange juice diluted with sweetened water is always liked, and helps to replace the vegetable element missing from the diet

It is very important to secure the maximum of variety in the necessarily limited scale of diet Café-au-lait, tea made with milk instead of water, eggs lightly boiled, or in the form of egg-nogg, or as batter pudding, beef juice (which when not digested turns the stools a reddish brown), ice cream in small quantities, are generally liked and are well borne Jellies though of no nutritive value are useful as analeptics, and are grateful to the palate Farinaceous jellies and puddings may vary the dietary, but it is doubtful whether they are readily digested

I have almost invariably observed the rule to give no solid food until the temperature has been normal for a week In the rare cases when I have abandoned it, it has been because, every other symptom having disappeared, and the stools having for several days completely regained the natural faecal odour to the exclusion of all fœtor, the persistence of a fever temperature has seemed possibly due to want of a more generous diet And, in fact, the addition of fish or of a little scraped meat has in such cases been followed by a fall of temperature

When the patient is thirsty there is no difficulty about getting him to drink large quantities of plain cold water, or eau rouge, or fresh lemonade, or mineral water from which the gas has been allowed to escape But when thirst is not urgent he should be encouraged to drink such diluent beverages freely

It is hardly necessary to explain how indispensable a moderately warm and well-ventilated room is, free from currents of air that can fall on the bed, or to dwell on the need for sedulous cleanliness, changing body and bed linen daily, or whenever it has become wet

\* I once examined the body of an enteric fever patient to whom from five to seven "quart" bottles of milk had been administered daily The colon and the last 4 feet of the ileum were tightly crammed with curd. Death had been due to general peritonitis without perforation, the bowel a couple of inches above the valve having been reduced for nearly its entire circumference to its serous coat

with perspiration or otherwise soiled, frequently washing the patient with soap and tepid water (napkins being used, and never sponges), paying special attention to all regions where folds of skin are found, or to insist on the importance of physical and mental rest in its widest sense. Thus, all large or sudden movements should be discouraged, the use of the bed-pan should be recommended from an early period, the light in the room should be carefully regulated, and never suddenly turned on at night, external noise should be as far as possible excluded, and the sound of footsteps on the floor should be deadened by loose pieces of carpet, removed and beaten every day, rustling skirts and creaking boots should be prohibited, the patient should never be suddenly roused if drowsy or sleeping, visitors should be excluded, and a judicious censorship exercised over letters and newspapers. Talking in the room should never be conducted in whispers, but should be distinct though in a low tone. The attendants should be warned not to lean upon or shake the bed while speaking to the patient, and, finally, in winter the fire should be coaled either with large lumps put on with the fingers, or, if with small lumps, then these should be brought to the room in paper bags, each containing a convenient quantity

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# CHINA.

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## IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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## MEDICAL REPORTS,

FOR THE YEAR ENDED 31<sup>ST</sup> MARCH 1890

38th and 39th Issues.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,  
AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON P S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1894

[Price \$1]



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death

b—Diseases prevalent at

c—General type of disease, peculiarities and complications encountered, special treatment demanded

d—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

e—Peculiar diseases, especially leprosy

f—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3 —Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

4 —

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I am, etc,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Takow,*  
*Kvukiang, Amoy,*  
*Chinkiang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, 1st January 1894

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Foochow for the year ended 30th September 1888, pp 5-8

Report on the Health of Newchwang, pp 3, 4,

Report on the Health of Foochow, pp 9-11, each of these referring to the year ended 30th September 1889

Report on the Health of Swatow for the nine months ended 30th September 1889, pp 1, 2

Report on the Health of Ningpo, p 12,

Report on the Health of Amoy, pp 20-24, each of these referring to the year ended 31st March 1890

Report on the Health of Pakhoi for the eleven months ended 31st March 1890, pp 13-15

Report on the Health of Kiukiang for the eight months ended 31st March 1890, pp 16-19

Report on the Health of Swatow for the half-year ended 31st March 1890, pp 25-28

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
*PEKING*

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The Contributors to this Volume are —

HENRY LAYNG, M R C S, L R C P	. Swatow
W MORRISON, M B, CH M	Newchwang
T RENNIE, M D, CH M	Foochow
C C DE BURGH DALY, M B, B CH	Ningpo
A SHARP DEANE, L K & Q C P, L R C S I	Pakhoi
RALPH S MILLER, M D	Kiukiang
B STEWART RINGER, M D, M R C S, L S A	. Amoy .

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## DR HENRY LAYNG'S REPORT ON THE HEALTH OF SWATOW

For the Nine Months ended 30th September 1889

DURING the past nine months the health of the foreign residents has been good. The port has been exceptionally free from epidemic diseases. No case of cholera, as far as I can learn, has occurred amongst the natives, greatly to their surprise, as they consider that cholera nearly always follows upon exceptionally heavy rains. In one district here cholera is called "the big water" (*i.e.*, "the flood") disease. The fall of rain in the spring and early summer months was excessive.

In the months of February, March and April minor complaints were somewhat prevalent. During this time there were six cases of acute tonsillitis, five of these occurred in one quarter of the foreign Settlement of Kakchio, one severe case being that of a visitor to the port, who was attacked three days after arrival. This latter case, together with the occurrence of five others in a small community of this kind, led me to seek for some local origin, but none could be discovered, save the damp, foggy weather then prevalent.

In March a severe case of remittent fever occurred on Double Island. This was interesting in many respects, more especially as the popular opinion here is that this island is free from malaria. Some grounds exist for this opinion (although undoubtedly erroneous), as, after careful inquiry of an old resident of over 25 years' standing, I could hear of but two previous cases of malarial fever. The probable explanation of the origin of this case is to be found in the fact that a new house was then being erected on the island, and, as a consequence, much soil was turned over that had probably remained undisturbed for years.

During the early summer months several cases of diarrhoea with fever were under treatment, the attack being usually ushered in by a sudden rise of temperature, in some cases as high as 104°. Recovery usually followed these attacks in from two to four days, two cases proved somewhat difficult to treat, and extended over a longer period of time.

The heat during the early part of July was exceptionally severe, but, fortunately, I have no case to report of sunstroke or of severe fever following exposure. One case of typhoid fever from an ocean steamer was admitted into the Seamen's Hospital. From the history of the case the fever would appear to have been contracted in Shanghai, the patient being admitted on the tenth day of his attack. After a stay of 27 days the patient was discharged. The case presented no special points of interest.

The health of the children has been very good. There were only two cases of remittent fever, a few of febricula and one of intermittent fever. This satisfactory condition is, I think, partly due to the fact that nearly all the children here spent the hot months on Double Island. Double Island is nearly 5 miles nearer the mouth of the river than Swatow, and is so situated that it derives full benefit from all sea breezes.



The cooler nights and the excellent sea bathing attract many of our number to Double Island during the hot months. This change, small as it is, often proves very beneficial. In reference to sea bathing, it cannot be too strongly insisted upon that after sunrise or before sunset it is attended with considerable danger. Four cases of fever, fortunately slight, have occurred this summer, which were clearly due to bathing before sunset.

Through the kindness of Dr LYALL, of the English Presbyterian Mission, I have seen much of the work at the Mission Hospital, I can therefore report with greater confidence on the prevalence of epidemic diseases amongst the natives.

Five births have occurred.

I have one death to record. Postmortem examination showed congestion of lower lobe of left lung, a large, fatty liver, granular, contracted kidney.

For the meteorological table I am indebted to the kindness of Capt C H PALMER.

METEOROLOGICAL TABLE, January to September 1889

MONTH	WIND					BAROMETER				THERMOMETER						WEATHER		
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Averages		No of Days Run	Runfall	No of Days Fog
														Wet Bulb	Dry Bulb			
	D h	D h	D h	D h	D h	Inches	Inches	Inches	Inches	°	°	°	°	°	°	D h	Inch	D h
January	19 6	7 0		2 18	2 0	30 490	30 046	30 476	30 146	67 0	56 0	66 0	55 0	54 0	57 5	1 23½	2 06	1 12
February	11 6	7 0	1 12	2 12	5 18	30 500	30 024	30 470	30 080	73 0	55 0	70 5	55 0	53 7	58 8	1 22	1 53	1 18
March	12 0	11 18	1 6	1 0	5 0	30 568	29 980	30 500	29 950	75 5	56 0	72 0	59 0	58 8	61 9	1 15	2 62	3 18
April	10 0	8 18	2 12	2 6	6 12	30 348	29 890	30 250	29 736	77 0	63 0	77 0	62 0	65 7	67 6	2 18	3 89	8 18
May	8 6	10 12	5 0	1 12	5 18	30 256	29 800	30 230	29 800	84 0	71 0	83 0	71 0	74 6	76 3	5 3½	16 11	
June	2 0	6 12	15 0	1 18	4 18	30 120	29 800	30 150	29 700	87 0	86 0	77 0	77 0	78 4	81 7	3 17	10 94	
July	1 12	6 6	15 6	3 18	4 6	30 150	29 700	30 050	29 700	91 0	82 0	88 0	81 0	86 0	80 8	1 18	7 51	
August	2 6	13 12	5 18	3 0	6 12	30 106	29 700	30 100	29 710	87 0	80 0	86 0	81 0	82 8	79 8	1 17	9 01	
September	5 6	14 0	4 12	1 6	5 0	30 200	29 900	30 228	29 915	89 0	78 0	87 0	74 0	81 5	77 8	0 22	2 23	

## DR W MORRISON'S REPORT ON THE HEALTH OF NEWCHWANG

For the Year ended 30th September 1889

DURING the period under review the health of the foreign residents in this Settlement has continued good

As regards the climatal conditions, the winter was a mild one During the hottest period of summer diarrhoea was prevalent, and, what is something unusual, one or two cases of dysentery occurred

Measles in a mild form, two cases of small-pox among the children and two cases of typhus among the adults make up the number of infectious diseases treated

In the small-pox cases (both aged about 2 years) I painted the faces on the fourth day with a solution containing 20 grains of nitrate of silver to an ounce of water, as recommended by Mr HIGGINBOTTOM, with very good results

Three births and one death have taken place during the year

The death was that of a female, aged 13 years, due to mitral stenosis following an attack of acute rheumatism She had suffered from acute rheumatism twice before arrival in this Settlement, with resulting mitral injury

Happily, the year, which began with depressed trade and famine, has ended with plenty Encouraging reports of a plentiful harvest are being daily received The floods, which I have referred to in my Report for the previous year, in their varied results continued to occupy public interest during the earlier portion of the year under review Great exertions were made by the foreign residents here to make the distribution of relief in the inundated districts as thorough as possible The missionaries at Moukden, in addition to their hospital, with the friendly aid and co-operation of the native authorities, rented two unoccupied buildings—one as a refuge, the other as a fever hospital,—where the patients had the benefit of attendance from Drs YOUNG and GREIG

Being unable to visit any of the districts, Dr GREIG has kindly furnished me with the following notes on treatment of patients from the famine district —

The diseases most common are those resulting from prolonged privation and bad hygiene In the first rank must be placed the infectious fevers

Typhus has been very severe in those it attacked About eight cases have come under my notice, of these, two died, and of the others, some were lost sight of before gaining much strength

Of typhoid fever, there were few cases and comparatively mild attacks

Cholera threatened us At the beginning of September I saw two cases Both made good recoveries

The plague, properly so called, I have not met with, but many of our cases of simple fever have had boils and carbuncles, as also local and general dropsies, thus closely resembling it

Breakbone fever, or dandy fever, is very common. Of its identity with the tropical disease of that name I am not quite sure, but it answers in almost every detail to descriptions of dandy fever in the standard works. There have been no fatal cases of it so far as I know, but the pains in the limbs and head and great restlessness complained of are often very distressing and hard to alleviate.

Diseases of the digestive system have been by far the most common. In our hospital almost everyone complains of a "sore stomach." All sorts of dyspepsia and irritable stomach prevail, probably as the result of the indigestible and raw vegetables and herbs on which the people have been living.

Persistent diarrhoea, suppurating glands and necrosis and acute inflammation of the long bones are also among the diseases prevalent.

To sum up, the great majority of our cases (about 95 per cent) are rescued by proper feeding and clothing, combined with the judicious use of drugs.

Mr J ARMOUR, Harbour Master, has kindly assisted me in drawing up the following table —

METEOROLOGICAL TABLE, October 1888 to September 1889

MONTH	ANEROID BAROMETER		NO OF DAYS ON WHICH THE TEMPERATURE FELL BELOW						NO OF DAYS ON WHICH THE TEMPERATURE ROSE ABOVE						No of Days on which Rain fell	Total Amount of Rainfall	No of Days on which Snow fell	No of Days on which there were Dust Storms	No of Days on which High Winds blew
	Highest	Lowest	°F -15	°F -10	°F 0	°F 10	°F 20	°F 32	°F 50	°F 60	°F 70	°F 80	°F 85	°F 90					
1888	<i>Inches</i>	<i>Inches</i>														<i>Inches</i>			
October	30.70	29.80						6	21	7					3	11.0	1		10
November	30.74	30.02					8	20	4						1	0.1			8
December	30.84	30.06				4	23	6									2	1	9
1889																			
January	30.84	30.15			19	11	1										4		5
February	30.80	30.17			1	9	14	4									1		7
March	30.66	29.88					10	16									2	4	15
April	30.50	29.46						7	11	9					5	2.3	2		7
May	30.40	30.10							4	20	7				3	0.6			8
June										2	19	9			9	2.6		1	6
July											6	25			6	2.3			3
August											10	21			8	5.6			4
September									4	14	12				9	3.4			

NOTE.—Owing to an accident to the barometer the readings were not taken during the months of June, July, August and September.

## DR. T RENNIE'S REPORT ON THE HEALTH OF FOOCHOW

For the Year ended 30th September 1888

DURING the year the number of foreign residents was about 330, and among them there were 11 births and 3 deaths

In connexion with the former, I have to record the valuable aid obtained from the use, for alternate periods, of digitalis and convallaria marialis preceding labour, and of digitalis and chloral hydrate during labour, in a patient the subject of valvular disease of the heart, who, during the later weeks of pregnancy, suffered from symptoms of cardiac failure, palpitation, dyspnoea and dropsy with albuminuria

One death was caused by tympanites, with sudden failure of the heart's action, while - convalescing from a low febrile attack, one from typhoid fever, and another from diphtheria

The first-mentioned case occurred in an elderly lady of very full habit of body, who had resided in China over 20 years. For over 12 months she had suffered from a morbid condition of the blood. This was at first indicated by large carbuncular boils, followed by general ill health and persistent urticaria, which, in spite of a sojourn by the sea in a neighbouring port, persisted throughout the year. On 30th December a low form of fever commenced, and on 9th January it ended in free perspiration. While the fever lasted the temperature taken in the axilla never exceeded 101° F. Although for over nine years symptoms indicative of heart weakness had exhibited themselves, chiefly by a slow, weak, intermittent pulse, the heart's action kept quiet during the febrile attack. On 10th January temperature was normal, and general improvement continued till the evening of 11th January, when I was suddenly called in to see the patient, who was suffering severely from tympanites, which she thought had been caused by a chill caught while sitting up during the afternoon. As in the morning the bowels had acted naturally, heat was applied over the abdomen and a stimulant carminative draught given. This afforded relief. On the following morning patient expressed herself as feeling very comfortable. The tympanites was relieved, but the heart's action had now become disturbed. Pulse was 120, feeble, rapid and irregular. Breathing was quickened, but temperature was normal. By frequently giving alcoholic stimulants with liquid aliment throughout the day, and an occasional dose of digitalis, some improvement in the circulation resulted, and, beyond a feeling of inability to go to sleep, patient expressed herself as feeling comfortable. Early, however, on the morning of the 13th death suddenly occurred.

The patient who died of typhoid fever was a Portuguese, aged 34 years. He was unfit for duty on 13th April, and, hoping to overcome his indisposition by a dose of purging pills, did not seek medical advice till the evening of the 16th. When I visited him he had a flushed face and complained much of headache. The pulse was rapid, and temperature 104° F. The tongue was coated, the abdomen swollen and tender, the spleen enlarged, and the motions loose. The temperature ranged about 104° till the

22nd, when considerable hæmorrhage from the bowel took place and caused the thermometer to fall below normal. On the evening of the 24th the temperature reached  $105^{\circ}5$ , and continued high. The symptoms generally became more severe. On the 29th the temperature ranged between  $105^{\circ}$  and  $106^{\circ}$ . From past experience of antifebrin, I hoped at least to be able to control the temperature, but in this case the drug proved futile. Early on the morning of 30th April the patient died from exhaustion. There can be little doubt that the use of cathartics at the early stage of the disease had considerable influence in determining the severe type of fever and the fatal termination. Of late years, in my practice, this is the second fatal case of typhoid that has pursued a similar course after the use of purgatives at the outset of illness, and this experience, in a country where the disease is endemic and where all factors favouring the propagation of the malady are abundant, ought to act as a warning to residents against the common and thoughtless practice of resorting to purgatives for the treatment of almost every indisposition.

In the spring three other cases of typhoid fever in Europeans were treated.

On 2nd May I was called to attend the last-mentioned fatal case. The patient was an Eastern Portuguese child, aged 7 years, who had been ailing since 30th April. At the time of my visit he looked pale, prostrated, complained of sore throat, and the glands at the angle of the jaw were swollen. The tonsils were covered with false membrane, which on the right side extended as far as the posterior surface of the pharynx. Temperature was  $103^{\circ}$ , pulse 100, weak. On the following day the child looked extremely weak. A piece of false membrane on the left tonsil was hanging loose, leaving exposed a raw, bleeding surface. Breathing, other than being quickened, was unaffected, and the false membrane did not extend to the air passages. On the morning of 4th May the child died. Profound prostration being the most prominent symptom in this case, attention was mainly directed to frequent feeding with liquid aliment and alcoholic stimulants. Tincture of perchloride of iron was, every three hours, applied to the throat. Since my first visit to deceased he had been strictly isolated from other members of his family, but on 10th May a younger sister became affected. In her case the false membrane was confined to the tonsils, and the disease, pursuing a mild course, ended in recovery.

On 29th April the boy had fallen into a pond, the contents of which were contaminated with sewage and nightsoil. In the absence at that time of any trace of diphtheria in the neighbourhood, I think the origin of disease may be attributed to his having swallowed some of the impure pond water.

During the year these were the only cases of diphtheria treated. Although in former years I had attended four cases in natives, the disease has never during my residence here been epidemic.

Throughout the year the general health of foreign residents was good, and serious climatic illness was of less frequent occurrence than usual. Only three cases of dysentery—which, as formerly, yielded readily to the ordinary treatment by large doses of ipecacuanha—were met. A patient—whose symptoms—fever, dysenteric diarrhoea, with circumscribed enlargement of the liver—pointed towards liver abscess, after the administration of two large doses of ipecacuanha, rapidly recovered.

The most unhealthy periods were December and January, when a mild form of remittent fever, accompanied in most cases by sore throat, was prevalent, and on the approach of summer, in May and June, many suffered from deranged liver functions. In spring, among foreign children whooping-cough was epidemic.

For the following extracts from the Pagoda Anchorage Customs meteorological tables I am indebted to Mr Harboun Master LOVATT —

METEOROLOGICAL TABLE, October 1887 to September 1888

MONTH	WIND					BAROMETER				THERMOMETER.					WEATHER.										
	No. of Days N to E	No. of Days E to S	No. of Days S to W	No. of Days W to N	No. of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Max.	Min	Mean	Averages		No of Days Rain	Rainfall	No of Days Fog								
													Wet Bulb	Dry Bulb											
1887						Inches	Inches	Inches	Inches	°	°	°	°	°		Inch									
October	14	6	4	12	2	6	8	0	2	0	30 52	29 84	30 37	29 88	87 0	55 5	71 25	64 5	72 0	1	6	0	79		
November	19	0	2	6	0	18	7	18	0	6	30 49	30 11	30 58	30 17	79 0	47 0	63 00	60 0	65 0	1	0	0	50	1	0
December	18	0	2	0	1	12	8	0	1	12	30 52	30 11	30 51	30 15	79 0	37 0	58 00	49 5	58 0	0	6	0	02	0	18
1888																									
January	22	0	2	18	0	12	4	18	1	0	30 52	30 08	30 56	30 10	72 0	34 0	53 00	48 0	54 0	2	6	2	55	0	6
February	16	6	2	18	2	6	5	12	2	6	30 61	30 06	30 58	30 07	68 0	35 0	51 50	45 0	51 5	3	12	3	72	0	18
March	17	12	4	12	2	6	3	18	3	0	30 48	30 00	30 45	30 02	86 0	57 0	71 50	57 5	65 5	3	0	4	01	2	12
April	15	12	7	12	1	18	2	6	3	0	30 41	29 40	30 34	29 40	89 0	45 0	67 00	62 5	67 5	7	6	6	62	1	18
May	10	12	8	0	6	0	3	6	3	6	30 24	29 72	30 40	29 74	90 0	53 0	71 50	66 0	72 0	4	0	6	14	2	12
June	7	0	8	6	9	18	2	18	2	6	30 05	29 69	30 04	29 67	94 0	60 0	77 00	73 0	77 5	4	12	8	97	0	18
July	13	6	6	0	6	0	3	18	2	0	30 08	29 65	30 30	29 60	99 0	69 0	84 00	78 0	85 5	2	0	1	29		
August	6	18	7	6	8	18	6	6	2	0	30 07	29 52	30 06	29 34	101 0	66 0	83 50	80 0	86 5	5	0	20	14		
September	15	18	7	0	1	6	3	18	2	6	30 27	29 88	30 25	29 88	97 0	61 0	79 00	75 5	81 0	3	0	2	98		

The most remarkable feature of the year was the unusual and extreme drought experienced during the first few months. In December and January nearly all the wells and ponds had become almost dry. Advantage of this was taken to empty the ponds of foul deposits previously washed into them by rains falling on their surroundings. Filthy effluvia from these heaps of concentrated sewage, and from street drains which depend solely on heavy rains for cleansing, being abundant, amply accounted for the low fever and sore throat prevalent at that time.

Towards the end of January rain in considerable quantity fell. In the first few days in February snow covered the surrounding mountains to within 500 feet of the valley. Although about the usual amount of rain fell in February and March, the ordinary level of water in wells and ponds was not reached till April.

The spring was damp and weather changeable. Throughout the summer the atmosphere was moist, hot and depressing. Although typhoons were frequently predicted, wind storms were

infrequent About the middle of August, however, the monotony of the weather was relieved by a tremendous downpour of rain, followed by a severe typhoon After this the heat never regained its former height

In April, and again in August, heavy rains in the interior caused the Min to overflow its banks

Excepting typhoid fever, which was, during the latter half of the year, unusually prevalent, natives were remarkably free from all other kinds of disease Although typhoid is found here at all times, it was not until the end of February that its prevalence became notable That this season was favourable for the propagation of such a disease can be readily understood Here, rain being almost the only scavenger, the first rains after a prolonged drought would naturally bear an unusual amount of filth of all sorts into wells and ponds, and thereby increase the pollution of their scanty contents After rain the discoloured water in these receptacles, whence the natives draw their water supplies for household purposes, indicates the source of contamination and readily accounts for the rapid distribution of the disease

During the year cholera did not occur

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# DR T RENNIE'S REPORT ON THE HEALTH OF FOOCHOW

For the Year ended 30th September 1889

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at PAGODA ANCHORAGE,  
October 1888 to September 1889

MONTH	WIND						BAROMETR				THERMOMETER					WEATHER		
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	No of Days Variable	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Max	Min	Mean	Averages		No of Days Rain	Rainfall	No of Days Fog
														Wet Bulb	Dry Bulb			
1888							<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	°	°	°	°	°		<i>Inch</i>	
October*	14	2				15	30 51	29 22	30 49	29 23	89	49	69 0	63 5	71 5	9	3 74	2
November	15			4		11	30 50	29 21	30 54	29 82	84	51	67 5	61 0	68 0	9	1 54	7
December	12			2		17	30 60	30 11	30 55	30 02	78	41	59 5	56 5	60 5	7	2 59	4
1889																		
January	28	1		1		1	30 58	30 09	30 59	30 02	71	55	63 0	50 0	53 0	8	1 32	6
February	13	1		2		12	30 53	30 00	30 53	29 97	74	54	64 0	51 0	55 5	8	2 21	4
March	18		1	6	1	5	30 62	29 91	30 59	29 95	81	46	63 5	57 5	62 0	16	6 86	6
April	10	3		1		16	30 29	29 80	30 25	29 80	85	42	63 5	64 0	68 5	15	5 41	7
May	15	2	1	1		12	30 28	29 82	30 25	29 73	88	51	69 5	69 0	73 5	14	5 38	3
June	8	3	8		2	9	30 06	29 74	30 01	29 71	96	61	77 5	77 0	82 5	10	1 87	1
July	4	4	15		2	6	30 02	29 75	30 04	29 70	101	76	88 5	80 5	88 5	5	1 20	
August	9	3	7	2	3	7	30 10	29 62	30 09	29 62	98	70	84 0	77 5	85 5	6	5 97	
September	22	2	2		2	2	30 27	29 90	30 22	29 88	97	64	80 5	75 0	82 5	6	0 77	

For the above table I am indebted to Mr Harbour Master H A McINNES

The elders of the community considered the past summer the warmest they had experienced. In July and August, in the foreign Settlement, the minimum temperature at night usually exceeded 80°, whilst the maximum temperature in the shade by day was generally considerably over 90°. The rainfall during the last quarter of the year under notice was exceptionally low, and the consequent drought was so severe that the second crop of rice proved, in most instances, a complete failure.



Among foreign residents, who numbered about the same as last year—namely, 330,—there were eight births and three deaths. As to the former, there was nothing unusual to relate.

The cause of death in two of the fatal cases was typhoid fever. In January a robust adult was said to have died of hyperpyrexia at the end of the second week of the fever. In the other fatal case of this disease there was a true relapse. This set in seven days after the subsidence of the temperature of the primary attack, which had lasted six weeks. In the third week of the relapse death resulted from perforation of the bowel and peritonitis.

In the third fatal case death occurred during a paroxysm of angina pectoris. Deceased was 59 years of age, and had resided in Foochow for 36 years without ever having been away from the port. A well-marked *arcus senilis*, occasionally an intermittent pulse, with other signs of cardiac weakness, had been observed for some years before death. In the course of the 18 months preceding the fatal paroxysm there had been three attacks of angina, which had readily yielded to treatment by antispasmodics and inhalations of nitrite of amyl.

Besides an unusual prevalence of the ordinary climatic illnesses among foreigners during the winter and spring, there were eight cases of typhoid fever of a severe type.

In November many of the European children under 4 years of age suffered from ulcerative stomatitis, accompanied by fever and diarrhoea. In some instances the increased temperature lasted a week.

Notwithstanding the great heat experienced during the last quarter of the year, the health of the community was exceptionally good. The air being unusually dry favoured evaporation from the surface of the body, and thus rendered the high temperature more tolerable and the usual morbid conditions of a hot summer infrequent.

The appended photograph gives a very good illustration of deformity, due to complete arrest of development of the foetal head —



From year to year several cases of difficult labour among natives come under my care, and although the subject of the illustration did not and could not increase the difficulties, it was the appearance of a headless infant, whose head was supposed to be retained, that caused the native midwife to seek my assistance

On visiting the mother I found that after an illness of four hours' duration, and half an hour before my visit, she had given birth to an acephalous monster. The placenta had been expelled, the womb had contracted, and all that was left for me to do was to assure the mother that her labour was ended

The mother was 22 years of age, had been married for seven years, and had previously given birth to two healthy children, now aged 3 and 5 years respectively

The infant was said to have moved and to have emitted respiratory sounds after birth. The body was well developed, the hands were clubbed, and the feet were in the condition of equino-varus. Unlike most others of the same class, it was not a twin

Local folk-lore attributes the cause of this deformity to the mother, during gestation, sitting at night before a lamp and using a pair of scissors. The shadow of the scissors while in use is supposed to penetrate the womb and cause the deformity in the foetus. Harelip and intra-uterine amputations of foetal limbs are also attributed to the same cause

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## DR C C DE BURGH DALY'S REPORT ON THE HEALTH OF NINGPO

For the Year ended 31st March 1890

THE general health of the foreign community has been good, that of the Customs staff exceptionally so

There were six births and one death

The cause of death was sunstroke The deceased, an adult male, during unusually hot weather in July, fell, unconscious, in the street Death occurred 20 minutes afterwards The attack had evidently been threatening some time before, as he started from his house for his office, in a semi-conscious state, in sleeping clothes and a straw hat

The only other cases of serious illness were one of rheumatic fever with cerebral complications, complete recovery taking place, one of heart disease, one of central amblyopia (toxic), and one very chronic case of bladder trouble

One of the labour cases was complicated by an adherent placenta and severe hæmorrhage, the others were natural All did well

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## DR A SHARP DEANE'S REPORT ON THE HEALTH OF PAKHOI

For the Eleven Months ended 31st March 1890

SINCE last May the health of the foreign community has been fairly good, and no serious cases of illness have to be recorded, still, the general health of each individual is not quite satisfactory, dyspeptic symptoms being very common, caused by the want of a good mixed diet and by a scanty supply of food. The unvarying chicken, of which each person consumes from 400 to about 600 in the year, eggs, and, at times, good fish are what we have to depend upon for the animal portion of our diet for nine months of the year. From December to March we have fresh mutton twice a week and a plentiful supply of fresh vegetables, which makes a great change both in the health and appearance of everyone.

During the autumn five cases of nephrolithiasis, in a mild form, occurred among foreigners—an affection liable to occur here about the month of November.

In this climate, where profuse diaphoresis for nearly eight months in the year lessens the excretion of urine to more than half the normal quantity, the urine excreted, except when a considerable amount of fluid is taken, being high in colour and specific gravity, and frequently depositing numerous uric acid crystals, it can easily be understood how this affection comes about.

At the change from the hot to the cold season a person goes to bed perspiring, the body is only covered by pyjamas and usually a "cholera belt." About 4 A.M. the temperature falls, a cold wind blows through the room, and, being asleep, no extra covering is drawn up. Most cholera belts protect the abdomen, but not the loins. The jacket of the pyjamas is, in most cases, made too short, and if a person be seen who has been asleep for some time, it will nearly always be observed that the waist is uncovered, unless the jacket is tucked inside the trousers at the waist, which is a hot way of wearing them. This is a common mode of getting what is called a chill. The loins being thus exposed to a cold wind, the person rises in the morning feeling "out of sorts," and in a day or so is in bed sick. The kidneys have become congested, and, being already hampered by the lack of sufficient flushing, resent the increased work thrown upon them. In these cases, although calculi may not form, the urine very probably precipitates, it may be in the renal pelvis or in the ureters, causing pain from the irritation of the passage of the precipitate.

The symptoms are, after a day or so of general indisposition, a severe catching pain, aggravated by stooping, worse in the morning on getting out of bed, and changing to a gnawing pain as the day wears on. The temperature rises 5 or 6 degrees, dry skin, pulse about 100, furred tongue, anorexia, frontal headache, urine scanty, acid in reaction, generally dark coloured, usually clear when passed, but at times opaque, specific gravity 1.035 to 1.040.

Under the microscope, just after the urine has been voided, are seen numbers of dumb-bell and uric acid crystals, epithelium, and, in some cases, numerous blood corpuscles. The patients say they have caught cold and are suffering from lumbago or rheumatism. This condition continues, with little variation, until the patient is treated, as the following case will illustrate —

In November last year a patient came to me as a bad case of rheumatic fever. He stated that about a fortnight previously he had been exposed to the sun in a boat while on a journey, and that on the same night he had got a chill. The following morning, on getting out of bed, he was seized with such a severe catching pain across the loins he dared hardly move, and he passed a small quantity of urine, the colour of strong tea. Fever then followed, and he remained in bed for some days, in consequence of pain in his back and limbs. The bowels being constipated, he took purgatives and quinine for the fever, along with other medicine, from which he received little benefit.

When I saw him he said his health was excellent until the date of the attack. His temperature now was 101°, tongue foul, breath very fetid, no appetite, bad frontal headache, complained of general muscular pain throughout the body, especially in lumbar region, on stooping. Urine was passed in small quantity, not high coloured, but opaque, as it was passed, albuminous and very acid, specific gravity 1.036. The microscope showed it to contain a large number of altered blood corpuscles, dumb-bell and uric acid crystals and much epithelium, neither tube casts nor pus could be detected.

The treatment consisted in giving, hourly, drachm doses of citrate of potash, with plenty of barley water to drink. In six hours the general muscular pains had almost disappeared, and urine was excreted in large quantities. The medicine was then reduced to 1 drachm every three hours. The following day the patient expressed himself as quite well. The bowels had acted four times, the pain in the loins had gone, he could stoop without pain, and his appetite had returned, but his tongue was still foul. The urine was neutral, contained some blood discs, but no crystals. He was directed to continue the potassium citrate (1 drachm every three hours) along with the barley water, and for diet he had tea and toast and chicken broth with rice. On the second day the urine was neutral, without albumen, and very few blood discs could be found, but the tongue still being foul he was ordered a mixture containing nitro hydrochloric acid with tincture of nux vomica, and to take 1 grain of grey powder every three hours. This had the desired effect, the tongue became clean and the urine normal, and the patient returned to the interior three days later in good health.

The treatment in these cases is simple and speedily efficacious, namely, render the urine alkaline and induce its excretion by directing the patient to drink as much barley water as he can take until urine is passed in large quantities, and, if necessary, apply hot fomentations across the loins. All the cases were treated on the same lines and were restored to health in three or four days.

The births of two male infants have to be recorded, both of which occurred during the cool season.

Pakhoi is about the most filthy town I have seen, and the health of its inhabitants is good or bad according as the rainfall is large or small. After two months dry weather the streets become loathsome, the stench from fermenting garbage on every side and from stagnant sewage in the underground drains is past description. During a long continuance of dry weather a serious outbreak of disease will be sure to make its appearance here.

No cases of malarial fever have occurred, nor are they likely to occur over the dry sandy ground of which the Pakhoi peninsula is composed.

Several cases of diarrhoea with vomiting, met with in most parts of China, in which death followed within a few hours from the commencement of the attack, took place during July, August and September. The diarrhoea did not take on the form of an epidemic, and was caused by eating unripe or unsound fruit. However, in several small towns remote from this place epidemic cholera was reported to be raging, and an eye-witness, who passed through one of these villages, states that it was deserted, and that the only living animal he saw in it was a pig.

By a letter lately received from Lungchow we learn that bubonic plague (*yang-tzŭ-chêng*, 癘子症, or, as it is known at Pakhoi, *li-tzŭ-chêng*, 癘子症) made its appearance there during the latter part of March this year. Having originated in Yunnan, it passed through the town of Po-sê and the prefectural cities of Nan-ning and Tai-ping, in Kwangsi, and thence to Lungchow, also in Kwangsi. Considering that a certain amount of merchandise passes regularly between Nan-ning and Pakhoi, it might be supposed the plague would find its way here, but up to the date of this Report no cases have occurred here since the spring of 1884.

I append a meteorological table (latitude,  $21^{\circ} 29' N$ , longitude,  $109^{\circ} 6' E$ ), the temperature being taken according to the rules laid down by the Astronomer at the Hongkong Observatory.

METEOROLOGICAL TABLE, May 1889 to March 1890

MONTH	THERMOMETER			RAINFALL	MONTH	THERMOMETER			RAINFALL
	Highest	Lowest	Mean			Highest	Lowest	Mean	
1889	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	<i>Inches</i>	1889	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	<i>Inches</i>
May	97	71	87.00	3.19	November	81	53	65.00	2.80
June	97	76	85.00	5.26	December	75	49	60.05	0.25
July	97	75	87.70	6.60	1890				
August	94	72	82.70	30.23	January	77	45	68.00	3.39
September	93	72	83.80	12.48	February	87	48	79.00	0.46
October	94	63	79.00	1.22	March	86	41	61.50	3.26

## DR RALPH S MILLER'S REPORT ON THE HEALTH OF KIUKIANG

For the Eight Months ended 31st March 1890

I HAVE pleasure in recording that during the eight months ended 31st March there have been very few cases of serious illness among the foreign community, and no deaths

Notwithstanding six weeks' almost continuous rain during the autumn, there has not appeared to be a greater amount of malarial fever than usual. Judging from an eight months' residence here, and the cases of illness met with among Europeans, I should say that malaria was comparatively infrequent, most of those who suffer from miasmatic chills or neuralgias having contracted the poison in other parts of China or the East, and even these state that they suffer less here than in most of the other ports

Situated as Kiukiang is, surrounded almost entirely by water, and at times only a few feet above it, it would appear exceedingly likely that the excessive evaporation and consequent moisture, along with the flat character of the country round about, would make it anything but healthy. Such was the impression I received on getting a bird's-eye view of it from the Lu-shan Hills, but as my professional experience did not confirm it, I began to make inquiries as to the reasons for this

Last summer was exceptionally hot, the thermometer on several occasions registering 103°. The Lu-shan range of hills, rising as they do to a height of 4,500 feet, and situated to the south, effectually shut out the wind from that quarter during the summer, and are chiefly responsible for the saying that "Kiukiang is the hottest place on the river." They, however, offer a compensation by affording the benefits of a high altitude and beautiful scenery, which are taken advantage of by invalids and others during the hot season

From what I can learn, malaria has been much less frequent in the Concession during the last few years, owing to a number of sanitary improvements having been effected, notably in filling up stagnant pools and in elevating several of the roads and compounds. There is still room, however, for further improvements in this direction

At present the Concession stands considerably higher than the neighbouring part of the city, many of the streets of which during last autumn were flooded for several weeks, and a vast amount of discomfort and sickness was induced in consequence

At the hospital there are many cases of malaria, but some of them come long distances, so that it is very difficult to ascertain with any exactitude the districts where malaria is most prevalent. The low situation of many parts of the city, together with the squalor and filth,

the reeking atmosphere, the want of cleanliness and, in many instances, insufficient food, all tend to lower the vitality and make the constitution more vulnerable to the attacks of the malarial poison. In the country the same conditions do not obtain, at least to the same extent, but there the miasm is generated in the paddy fields by which the dwellings are surrounded, and there is little wonder that a considerable number of the inhabitants suffer in consequence.

The large plain lying to the west of Kiukiang is responsible for a great deal of the fever among the villages near it. It is flooded during the summer, but during spring and autumn it is marshy in many places, while the sun's rays are sufficiently strong to induce a rapid decomposition of the vegetable matter.

The same might be said with reference to the district north of the river, where many villages are situated on the dykes which have been built to keep the river in bounds. Notwithstanding these, however, there is an immense tract of country under water when the river is at its height, and very many of the inhabitants live in their boats until the water goes down again. The missionaries who visit that district report that there is always a large amount of sickness due directly to its malarial character. The width of the river, and the fact that it absorbs a certain amount of the malaria, must have a considerable influence in preventing the spread of disease to this side.

There were several acute cases of dysentery and dysenteric diarrhoea among the foreign community, but all made satisfactory recoveries. A case of tuberculosis of both lungs, with the usual phthisical symptoms, came up from Shanghai early in the autumn, but has very much improved in every respect from residence here.

One of the officers of the USS *Monocacy* developed symptoms of small-pox when in the port, and was transferred to the hospital. The disease ran a mild course, was discrete in type, and the patient made an uninterrupted and favourable recovery.

The number of in-door and out-door patients at the hospital has been steadily increasing, and the number admitted in March (135) has exceeded that of any previous month. Among these there have been many interesting cases.

One was that of a man who came in complaining of shortness of breath. On examination I found the breathing stertorous and laboured, with dulness on percussion over the whole of the right side, and breath sounds indistinguishable. I aspirated at the base, and drew off 106 ounces of pleuritic fluid, the breathing becoming more and more natural as the fluid was evacuated, until at the end it was perfectly easy.

Leprosy does not seem to be of very frequent occurrence in the immediate neighbourhood, but we have had about 20 cases during the last six months.

Two were brothers, who came 2,000 li, from the southern part of the province. On inquiring into their family history I found that their father and uncle had been similarly affected, and they said that there were many cases in their district. I kept one leper in the hospital for over three months, trying the effect of guajun oil, but the man seemed to be gradually getting worse, although the treatment was steadily persisted in.



Eye diseases of all kinds have been especially frequent lately, the greater number being in a very advanced condition before relief has been sought. This is one of the most hopeful of the departments of the hospital work, as many regain at least sufficient sight to place them in a position to earn their own living or provide for their families. As the benefits of the hospital become better known, this class of cases will become still more numerous, with the result of diminishing, to some slight extent, the amount of suffering which blindness entails.

A mandarin's mother came, about two months ago, with cataract of both eyes of several years' standing. One cataract was extracted, and she returned home with good vision in that eye, promising to come back soon for the other eye to be operated upon.

One very noticeable point in operations of all kinds is the very slight tendency to inflammation among the Chinese, due in great measure to the spare diet to which they are accustomed. Strict Listerism is practically impossible, yet they seem to make marvellous recoveries in spite of their surroundings.

There have been three European children born during the period under review. One of the confinements well illustrated the danger that may follow the use of intra-uterine injections from passage of the fluid through the Fallopian tubes into the peritoneum. Rigors, with temperatures of  $103^{\circ}$  and  $105^{\circ}$ , on two occasions followed the washing out of the uterus, and at such a short interval as to make it evident that they were the result of it. At each time there were symptoms of peritonitis, but on leaving off the injections the case ran a favourable course.

I have been called to nine Chinese accouchements, all the patients having been in labour from one to four days. Out of these there were two deaths, due to puerperal eclampsia and exhaustion.

The first was a primipara, 22. Had been in labour three days, and was comatose when I arrived. On applying forceps, she had a convulsion, and I then learned that since the previous day she had been having similar fits at intervals. I put her deeply under chloroform, but had to perform craniotomy before I could get the child away. As she could not swallow, I gave her an enema of chloral and bromide, and inhalations of chloroform when the convulsions came on, but she gradually sank, and died eight hours after.

The second was a multipara, 38. Had been in labour about 24 hours. All her previous confinements had been premature. She seemed much exhausted, and on examination I found an exostosis protruding from the upper part of the sacrum, diminishing seriously the antero-posterior diameter of the pelvis. The axis-traction and Simpson's ordinary forceps had no effect in bringing down the child, and craniotomy had to be resorted to. Even after the head had been born, the shoulders would not engage in the pelvis until the arms had been brought down first. I had previously tried to turn, but could not get hold of the lower limbs to do so.

The mother rapidly sank from exhaustion after the child was born. The child was much above the average size.

One of the successful cases was where the heads of twins got locked in the pelvis, one of the children was saved.

For the following abstract of meteorological records I am indebted to Mr LOVATT, the Harbour Master —

METEOROLOGICAL TABLE, August 1889 to March 1890

MONTH	THERMOMETER		RAIN		MONTH	THERMOMETER		RAIN	
	Highest	Lowest	Quantity	No of Days		Highest	Lowest	Quantity	No of Days
1889	°	°	<i>Inches</i>		1890	°	°	<i>Inches</i>	
August	100	68	3 52	9	January	65	32	1 80	5
September	99	65	8 05	13	February	69	34	5 15	13
October	83	55	9 09	24	March	68	37	6 87	13
November	68	46	3 86	8					
December	61	41	0 25	3					

## DR B STEWART RINGER'S REPORT ON THE HEALTH OF AMOY

For the Year ended 31st March 1890

THE summer of 1889 was unusually hot and prolonged, and both foreign residents and natives suffered considerably from the inconveniences generally attendant upon such conditions. The port was, however, quite free from epidemic cholera. Summer diarrhoea, boils and malarial fevers were the most numerous among cases treated.

Ten births and three deaths have to be recorded

The first fatal case occurred in March 1889, in the person of an Englishman, aged 41, who had suffered from hemiplegia, due to cerebral softening. At a postmortem examination the superior surface of the brain was found deeply congested, and the dura mater slightly adherent in several places. The anterior portion of the left optic thalamus was bulging into the lateral ventricle and had degenerated into the consistence of thick cream, the right was in a similar condition, but less extensively changed. On section, the left corpus striatum showed a disc of degenerated material on its inner anterior aspect, and a smaller and more superficial zone of a similar nature was found on the right side.

The second was a death from heat fever, early in July. The patient was a German, about 40 years of age, and had exposed himself to the midday sun in a light straw hat. The temperature one hour and a half after death was found to be  $108^{\circ} 8$ . At a postmortem, 12 hours after death, the following points were observed. Rigor mortis was well marked. The posterior portions of body were covered with large, livid patches. Heart somewhat fatty, pericardium contained about  $\frac{1}{2}$  ounce of liquid, the wall of right ventricle was thin and the ventricle contained a little frothy blood, left ventricle empty. The blood collected in the cavity of the thorax during the examination was dark, gumous and liquid, showing no tendency to coagulate. The lungs were both deeply congested throughout. The stomach contained several ounces of pale coloured liquid, with the usual characteristic odour. Urinary and faecal discharges were found in the clothing.

The third case, which was one of melæna and hæmatemesis, occurred in the same month. The patient was a Japanese, aged 27. He had been a sufferer from dyspepsia more or less all his life. When called upon to attend him for this complaint, I found on examination, about a week before his death, some swelling of the abdomen, with enlargement of the cutaneous veins and fluctuation apparent, which conditions, he said, had gradually come on during the few previous weeks. The apex beat of the heart was distinctly visible, slightly to the inner side of the left nipple. Over this spot, and for an area of about 1 inch around it, a systolic murmur (probably from tricuspid insufficiency) was audible most distinctly to the right and below, not audible at back. Three days before his death he began to pass tarry stools frequently and vomited dark liquid blood and black blood clots several times during the day. Ipecacuanha, ergot and turpentine were tried, without avail. The patient gradually became weaker, refused food and died comatose. No postmortem was obtainable.

## SUPRA-PUBIC LITHOTOMY

The following notes on four cases of removal of stone from the bladder in Chinese by the lately-revived operation above the pubes may be found of surgical interest —

CASE I —TIAN LAI, aged 30, presented himself at the Amoy Chinese Hospital on the 18th March 1889, and complained that for many years he had suffered much difficulty in passing water, and that for the last two weeks it had been constantly dribbling away. He seemed very weak, and bent his body forward as he walked painfully and slowly along.

After examination with sound, a stone of large size was diagnosed, and the patient being thin and a good deal wasted, it could be plainly felt by manipulation between the abdominal wall and the rectum.

On the 12th April 1889 chloroform was administered, and about 8 or 9 ounces of a warm solution of boracic acid (5 grains to the ounce) was injected into the bladder, and the base of the penis ligatured with a piece of thin india-rubber tubing, which returned the liquid perfectly. The bladder could now be felt above the pubes. No attempt was made to distend the rectum. An incision was made over the symphysis pubis and carried up in the median line towards the umbilicus for about 4 inches. The fascia and muscular fibres of the pyramidalis and rectus abdominis were carefully cut through to the full extent of the wound, then, with the fingers and handle of scalpel, the glistening surface of the bladder was gradually exposed, the thin layer of fat, with the peritoneum, being scraped upwards towards the top of the incision and held there out of harm's way by the fingers of an assistant. The bladder was now steadied by hooks and punctured with a sharp-pointed bistoury near the upper portion of the skin wound, and the bistoury carried in a straight line downwards towards the pubes. The index finger of the left hand was now quickly introduced into the bladder and closely followed by that of the right, and the stone grasped between them was brought upwards to the wound in the bladder, which, however, was not sufficiently large to allow its extraction. The stone was therefore released, and the wound lengthened towards the pubes. It was then again caught and, after some gentle manipulation, removed with the fingers.

The stone was of oval shape, measuring  $2\frac{1}{2}$  inches long,  $2\frac{3}{16}$  inches broad and  $1\frac{5}{8}$  inch thick, and weighed 5 ounces and 40 grains. On section, it showed a thick external layer of phosphatic deposit, with alternating concentric layers within of a harder and darker material, probably uric acid. The patient believed it had been growing for more than 20 years.

The bladder having been washed out with a weak solution of boracic acid, the wound was allowed to remain open, and a soft india-rubber catheter placed in the bladder, with the end hanging out at the pubic end of the wound, which was covered with a carbolised oil dressing, changed twice daily.

Recovery was very protracted, as, eight days after the operation, a large bed-sore began to form over the sacrum, and was a source of great trouble. Up to this time the temperature had not risen over  $101^{\circ}4$ , but now gradually increased to  $103^{\circ}4$ . The sore was treated with lead lotion and iodoform ointment, pressure being removed as much as possible by means of an air cushion.

The catheter had to be frequently changed, as the urine contained mucus, pus and phosphatic deposit. On the 24th April the catheter was removed from the wound, and some urine passed by the urethra. On the 5th May (23 days after the operation) the temperature became normal, and the general condition improved. On the 22nd May the abdominal wound had nearly healed, the bladder had closed over and all the urine was passed by the urethra. The patient was, however, kept in the hospital for several weeks longer till the bed-sore had completely healed.

Some months after his discharge this patient again presented himself to seek advice about an abdominal swelling which had arisen since he left the hospital. This was found to be a ventral hernia, about the size of half an orange, at the upper part of the abdominal cicatrix. He was advised to wear a band, but did not place himself under further treatment, and has not been seen since.

CASE II—TEK LIONG, a Chinese boy, 7 years of age, with a stone in the bladder, was put under chloroform on the 5th August 1889. A weak solution of boric acid was injected into the bladder, and the penis ligatured. The rectum was not distended. An incision  $2\frac{1}{2}$  inches long was made from the pubes upwards, and the bladder reached in the same manner as described in Case I. It was steadied with artery forceps and opened with a scalpel, the wound being subsequently enlarged by the fingers, and a stone, with a rather rough surface, measuring  $1\frac{1}{2}$  inch long,  $1\frac{1}{8}$  inch wide and  $\frac{1}{16}$  inch thick, weighing 230 grams, and composed chiefly of uric acid, was removed.

A drainage tube was placed in the bladder, one end being brought out of the wound, which was covered with carbolic dressing. The drainage tube was removed on the third day, as the child was by no means amenable to treatment, and the crying and struggling produced when the tube was taken out to be cleaned seemed to be doing more harm than good, as some hæmorrhage took place, blocking the tube and wound with blood clots, these being removed, however, the urine flowed freely and gave no further trouble. The skin in the neighbourhood was kept constantly smeared with boric acid ointment, to prevent excoriation, and folded cloths, which could be easily removed, were arranged to catch the dribbling urine. The highest temperature recorded was  $102^{\circ} 2$ .

On the 5th September a little, and on the 13th September all, of the urine was passed by the urethra, the opening into the bladder having closed. The patient was discharged, with the wound firmly healed, on the 25th September.

CASE III—TIAN, a Chinese youth, aged 17, admitted into the Chinese Hospital, suffering from stone in the bladder, was, on the 10th September 1889, placed under chloroform, and the bladder having been distended with boric acid solution, a stone was removed by an operation similar to that performed in the two preceding cases. The bladder in this case was drained by means of a catheter in the urethra, this was, however, removed on the third day after the operation, as it was thought to produce some irritation. The temperature, having risen to  $103^{\circ}$ , subsequently fell to  $101^{\circ} 2$ , which was the highest point reached during the future progress of the case. The calculus, which was formed of uric acid, was of a flattened, oval shape,  $1\frac{3}{8}$  inch long,  $1\frac{1}{8}$  inch wide and  $\frac{1}{16}$  inch thick, and weighed 242 grams. The treatment was the same as in Case II. A small slough formed in the upper part of the wound, which separated 13 days after the operation, leaving the surface beneath healthy. 10 days after the operation a little urine was passed by the urethra, the quantity increased daily till 9th October, when all was passed by the natural channel. Patient discharged, 18th October, with wound firmly healed.

CASE IV—KIN, a Chinese boy, aged 8 years, suffering from stone in the bladder, was operated on, under chloroform, on the 21st September 1889. 6 ounces of weak boric solution were injected into the bladder. The rectum was not distended. The stone was, as in the three former cases, extracted above the pubes, weighed 77 grains, measured  $1\frac{3}{16}$  inch long,  $\frac{3}{4}$  inch wide and  $\frac{9}{16}$  inch thick, and was composed of uric acid, showing alternate layers on section. In this case the peritoneum was brought plainly into view at the upper part of the wound, as the child strained a good deal, as if about to vomit, during the early part of the operation, and a portion of the peritoneal sac was forced out, looking like a delicate, thin bladder. As soon as observed, it was, of course, kept out of danger by fingers. The bladder was steadied by a loop of fairly thick carbolic catgut being passed through the muscular wall as near as possible to the upper part of the wound, and held firmly in position by an assistant. An incision was made in the bladder with a sharp-pointed bistoury, and the stone, being small and elongated, was readily extracted by the tips of the two index fingers. The bladder having been washed out with boric solution, the edges of the wound were stitched together by means of interrupted carbolic catgut sutures, about  $\frac{1}{4}$  inch apart, through the muscular coat only. The skin wound was treated in a similar manner, and a piece of narrow india-rubber drainage tube placed between it and the bladder, with one end brought out over the pubes. The patient passed water freely by the urethra the next morning, and the drainage tube was removed. The highest temperature recorded was  $101^{\circ} 2$ . The bladder was not quite watertight, as during

the next four days a few drops of urine passed through the wound during each act of micturition, and on the fifth day, owing to the partial absorption of the catgut sutures, which were rather thin, the lower part of the abdominal wound had opened up, and the same condition, in a more limited degree, had probably extended to the bladder, as the few drops were now increased to about 2 fluidrachm. The wound, which looked perfectly healthy, was strapped for the next few days with adhesive plaster. On the 2nd October (11 days after the operation) no more urine passed by it, and the patient progressed favourably till 1st November, when he was discharged with the wound firmly healed. He was seen again four months later, no local trouble existed, and the scar was perfectly sound.

The revival, during the last few years, of supra-pubic lithotomy, or the high operation for stone, as it was formerly called, has been productive of much consideration on the part of surgeons as to the best method of carrying out the details of the operation and the subsequent treatment of the patient. In this connexion the following short account of the history and the various steps of the operation, written nearly 70 years ago by J. CLOQUET, at that time surgeon to the Hospital of Saint-Louis, will doubtless be found interesting —

La taille "hypogastrique," ou le "haut appareil," fut d'abord pratiquée par FRANCO, qui ramenait la pierre au-dessus du pubis avec les doigts introduits dans le rectum. ROUSSET ensuite proposa de faire saillir la vessie au dessus du pubis en poussant une injection dans ce réservoir, afin de l'ouvrir plus facilement. La méthode du haut appareil était tombée en discrédit, lorsque le frère CÔME la fit revivre, elle convient dans le cas de pierre très-volumineuse et dans quelques circonstances particulières. On la pratique en ouvrant d'abord la portion membraneuse de l'urètre sur un cathéter introduit dans ce canal; on porte dans la vessie par cette incision la sonde à dard, on place le malade dans une situation horizontale; on fait une incision longitudinale sur la ligne blanche au-dessus du pubis, on éloigne le péritoine afin de ne pas l'ouvrir, on fait sortir le dard de la sonde de dedans en dehors à travers la vessie et on s'en sert comme d'une sonde cannelée pour fendre cette poche membraneuse à sa partie supérieure, on extrait ensuite le calcul. Après l'opération, pour éviter l'infiltration de l'urine dans le tissu cellulaire du bassin, on place une grosse canule par la boutonnière faite au canal de l'urètre, et une mèche de linge qui sert de filtre, dans la plaie supérieure.

Entering the bladder by means of a puncture through the membranous portion of the urethra, and subsequently draining it from the same opening, is an extremely interesting point in this old operation, and for the latter purpose a very similar proceeding has lately been employed by Mr C. J. BOND, of Leicester, in some special cases reported in his able article in the *Lancet* (10th August 1889), which I much regret not having been able to obtain earlier, as his clear and concise views would certainly have induced me to close the bladder wound in Cases II and III. The ingenious and simple method he recommends, of fixing the bladder with a loop, as done in Case IV, is most convenient and vastly superior either to hooks or forceps.

In Case I, the stone being very large and the bladder irritable and inflamed, I thought it well to leave the wound open, in consideration, however, of the fact—which I have not seen noted in any of the cases I have read—that a ventral hernia subsequently formed, I am inclined to think it would have been better to close the upper portion of the wound, which in this case was necessarily very long to allow a stone of such magnitude to be extracted, and in all cases where the incision is of great length I believe an abdominal belt of some sort should be worn for some months after healing is complete.

It will be observed that in none of the four cases was any attempt made to distend the rectum, partly because at the time of the first operation nothing suitable could be found and partly because the distended bladder could be distinctly felt above the pubes, and in the three subsequent cases it was purposely omitted, yet in no case was there any great difficulty in reaching the bladder. If care be taken, after dividing the skin, muscular fibres and fascia, to use the fingers and handle of the scalpel in removing the cellular tissue and fat covering the surface of the bladder, there is but little danger of wounding the peritoneum if the bladder has been previously fairly distended. This last point is very important, in Case II it was noticed at the time that proceedings would have been decidedly facilitated had more liquid been injected.

The bladder wall is sometimes remarkably tough, therefore a very sharp-pointed knife should always be used in opening it. To extract the calculus neatly is not always so easy as might be imagined, for, it being important to keep the opening in the bladder as small as possible, manipulation with the tips of the fingers, as advised, is not always practicable, and so little grasping force can be employed that the stone, if large or smooth, may readily slip from between them. Polypus, or some such forceps, may be used, but I think a lightly-made pair, with fenestrated blades after the fashion of ovum forceps, would act admirably.

In Case IV the much greater rapidity with which complete power of micturition returned, and the absence of any severe constitutional disturbance, strongly point, I think, to the advisability in uncomplicated cases of completely closing the bladder wound after the extraction of the stone. This should be done with numerous, ununiting sutures, such as carbolised catgut (Mr BOND used silk, which is probably better), the great point to be aimed at undoubtedly being to render the bladder watertight, as in Mr ANDERSON'S case (*Lancet*, 26th April 1890), in which no catheter was used throughout, and no escape of urine took place through the wound, notwithstanding repeated and violent attacks of coughing. This surgeon further advises the bladder to be tested before closing the skin wound. It may, however, be necessary to draw off the urine in some cases, and this is best done with a soft catheter every few hours after the operation, but should be omitted as soon as possible, particularly in the case of children, who are sometimes very intolerant of the use of the instrument.

The supra-pubic operation is much less difficult to perform than lateral lithotomy. It is sometimes almost bloodless, and by careful attention to the points mentioned above, should have no additional risks. In children and in cases of large calculi, where lithotomy is inadmissible, it would seem probable that it may become the operation of the future.

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# DR HENRY LAYNG'S REPORT ON THE HEALTH OF SWATOW

For the Half-year ended 31st March 1890

For the accompanying meteorological table I am indebted to the kindness of Captain C H PALMER, Harbour Master

METEOROLOGICAL TABLE, October 1889 to March 1890

MONTH	WIND					BAROMETER				THERMOMETER						WEATHER		
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Averages		No of Days Rain	Rainfall	No of Days Fog
														Wet Bulb	Dry Bulb			
1889	D h	D h	D h	D h	D h	Inches	Inches	Inches	Inches	°	°	°	°	°	°	D h	Inch	D h
October	10 6	12 0	3 6	2 6	3 6	30 274	29 830	30 215	29 830	86 0	73 5	83 0	76 0	75 5	79 4	1 0	2 57	
November	14 18	11 18		1 0	2 12	30 516	30 041	30 492	30 040	77 0	64 0	76 0	65 0	65 3	69 5	1 13	2 37	0 12
December	16 12	10 0	0 12	3 0	1 0	30 490	30 032	30 470	30 010	69 0	58 0	67 0	60 0	56 7	60 3	0 6	0 08	0 6
1890																		
January	9 0	15 18		1 18	4 12	30 502	29 948	30 484	29 846	68 0	53 5	67 0	56 0	45 9	57 8	1 23½	2 03	1 12
February	9 6	10 6	1 0	0 12	7 0	30 330	29 750	30 400	29 804	74 0	58 0	72 0	58 0	58 0	61 1	1 10	1 44	2 0
March	14 6	10 6		0 12	6 0	30 354	29 844	30 398	29 804	73 0	54 0	70 0	56 0	56 9	59 9	3 7	5 74	1 12

The autumn and winter were very mild

During the six months under consideration the entire drainage system of the buildings and property of the Imperial Maritime Customs has been carefully attended to, many alterations and additions have been made which, when complete, will undoubtedly add much to the sanitary condition of the locality and prove a boon to all members of the staff

In the reclamation of foreshore, enormous quantities of mud are being used to raise the level to that of the bund. The mud used is brought in boats from the bank of some other part of the river. The removal of vast quantities has, as far as I can learn, given rise to no disease, either at the present time or in previous years when similar operations were undertaken



During this half-year the health of the foreign and native population has been less satisfactory than I had expected from my experience of the cool months in the early part of last year. This may be partly accounted for by a somewhat prolonged and very prevalent epidemic of influenza.

During October dysentery attacked many natives in the surrounding villages, but no case occurred among foreigners.

In December four cases of diphtheria occurred among the children of the families of two missionaries, who had all lately returned from England. The first was on the seventeenth day after arrival, the others followed at various intervals of a few days. These cases were under the care of Dr LYALL, of the English Presbyterian Mission, who tells me that the attacks were not of a very severe nature, but, nevertheless, undoubtedly diphtheria. One case was followed by temporary loss of the power of accommodation of the eye and slight paralysis of the soft palate.

The first of these cases I had an opportunity of seeing myself. It is interesting to note that they were confined to members of two families, no others were seen in the compound, where there are a large number of native children, and no epidemic of diphtheria was prevalent amongst the natives of the district.

The origin is obscure. The children of the second family may have obtained the contagion from the children first attacked, but the primary source cannot be discovered. These are the first attacks of diphtheria that have occurred in this mission compound.

The following case is sufficiently interesting to report in full —

A chair coolie, strong, healthy and active, was seized at 7.30 P.M. with violent spasms of the legs and arms, clenching of the teeth, convulsive movements of muscles of the face. When seen by me at 8 P.M. his condition was as follows: lying in bed on his back, shoulders supported by a friend, a piece of bamboo firmly clenched between the teeth, an attack having just terminated, the pulse was quick and frequent, temperature  $100^{\circ} 8$ , intelligence perfectly clear, the countenance expressed extreme fear. He said he did not know why he was sick or what the sickness was. His surprise at being sick, and with a sickness that neither he nor his numerous Chinese friends understood, appeared to cause him much uneasiness.

The attacks were now recurring about once in every four minutes, each attack lasting about two minutes. During the attack the head was thrown back, the neck stiffened, the body arched (opisthotonus) and perfectly rigid, the teeth were clenched with a most powerful grip on a piece of bamboo, the arms and legs were seized with violent clonic spasms—at one second rigid and at another thrown out violently. During the attack the patient lost all control over himself, in the intervals the intellect was clear.

Immediately on the cessation of an attack a dose of chloral hydrate was given by the mouth, but this, as well as water or tea, instantly induced a fresh attack. 30 grains of chloral were now ordered every two hours, to be injected into the bowel. The attacks continuing as severe as before, at about 10 P.M.  $\frac{1}{4}$  grain of morphia was injected hypodermically. In half an hour improvement commenced, and at 11.30 P.M. the attacks ceased. Patient now complained of great soreness in the throat, which was quickly relieved by a mustard poultice, and at 12 midnight sleep was obtained. During the attack the temperature did not rise above that noted at the onset.

The following morning the temperature was normal, the only remaining sign of illness being extreme prostration, which lasted for several days.

Previous to the attack patient was quite well, and denied having taken any medicine or eaten any food except his usual fish and rice. Can this be looked upon as an abortive case of tetanus, or is the more probable explanation that of poisoning? The duration of the whole attack was but four hours.

### DISEASES OF THE TESTES

Seven cases of orchitis and epididymitis combined and one of simple epididymitis came under treatment. These cases all occurred among the residents, and do not include those on board of steamers passing through the port. They were all observed during the cool months.

One case only was due to gonorrhoea, two followed cystitis, one was in connexion with a large varicocele. In the remaining four no venereal or other local cause existed. These four cases must, I think, be considered as of malarial origin. A popular idea is current here that men are frequently attacked with orchitis shortly after their arrival. The accuracy of this idea I cannot affirm, but one of the above cases occurred in a fresh arrival.

### EPIDEMIC INFLUENZA

During the latter part of February I had been told by several natives that an epidemic was prevailing in the surrounding villages, the symptoms of which corresponded very closely with those of "epidemic influenza."

The first case among the foreign population was recorded on 17th March, and the last on 26th April.

That the epidemic came to us from the south is apparent, as Hongkong was infected before, and Amoy after, Swatow. The native passengers from the Straits on arrival here quickly disperse to their own homes in the villages, which may possibly account for the early appearance of the epidemic in the districts outside Swatow.

It is impossible to estimate the number of natives that suffered. From all accounts, and from my own experience, the number must have been very great, of Chinamen in the employ of foreigners, a moderate estimate would be 50 per cent. The inhabitants of the villages appear to have suffered more in proportion than in Swatow, one village having the unenviable credit of being twice visited by the epidemic, many of its inhabitants being attacked a second time.

Among foreigners some 30 cases occurred, that is, about 20 per cent of the entire population. The most general symptoms were constipation, 48 hours' fever, temperature rising to about  $102^{\circ}$ , slight bronchial catarrh, with cough commencing after the cessation of the fever, brow-ache, muscular pains and considerable lassitude, continuance of cough for some days following the attack. Coryza was seen but rarely.

Three cases were followed by acute bronchitis, all three being in men well on in middle life, and all occurred during a spell of cold, wet weather.

Two cases were followed by acute pneumonia. The first was a patient who had for months suffered from ascites, notwithstanding that the temperature ranged between  $105^{\circ}$  and  $105^{\circ}6$  for 36 hours, the lungs made a very fair recovery. The second occurred in a schoolboy of the

English Presbyterian Mission Pneumonia was of a low type, and at the time of writing the consolidation has not quite disappeared

One patient had a second attack following immediately after the first, the duration of the fever and elevation of temperature being the same in both attacks

The extreme prostration so frequently reported as occurring in Europe was not seen here Herpes of the neck was present once in connexion with the influenza, and two cases of catarrhal jaundice were under treatment when the epidemic was prevalent

The Chinese appear to have suffered much less from the severity of the disease than foreigners

Dr A LYALL tells me that at the E B Mission Hospital epistaxis was present in several cases at the onset, and diarrhoea in a few, but that vomiting was fairly frequent, and in some cases appeared to take the place of the cough

In natives quinine proved the most successful medicine The general treatment in foreigners consisted in a purge and, in the early stage, some simple febrifuge, and, later, a quinine tonic In some of the first cases quinine was tried in the early stage, but no beneficial effects followed it neither shortened the attack nor influenced the temperature, as far as one could see, as a tonic, after the first stage, it proved of great value

Antipyrin was never prescribed, antifebrin, once successfully, to reduce a temperature of  $105^{\circ}6$ , and twice in another case, to reduce a temperature of  $105^{\circ}4$ , unsuccessfully

Five births have occurred among the foreign population

Two cases of small-pox from a coasting steamer were admitted into the Seamen's Hospital The first died, and the second recovered The first patient was admitted in an absolutely hopeless condition, with confluent small-pox, death taking place 36 hours after admission This is the only death that has taken place during the six months

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CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1890

40th Issue.

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PUBLISHED BY ORDER OF

The Inspector General of Customs.

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON F S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

[Price \$0 50 ]

1894



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death

b—Diseases prevalent at

c—General type of disease, peculiarities and complications encountered, special treatment demanded

d—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

e—Peculiar diseases, especially leprosy

f—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons.

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I am, etc,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Tainan,*  
*Kuikiang, Amoy,*  
*Chankiang, Swatow, and*  
*Shanghai, Canton*

SHANGHAI, 1st February 1894

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Chinkiang, pp 1-3,

Report on the Health of Newchwang, pp 16, 17, each of these referring to the year ended 30th September 1890

Report on the Health of Ichang, pp 4-6,

Report on the Health of Swatow, pp 18, 19, each of these referring to the half-year ended 30th September 1890

Report on the Health of Hoihow (Klungchow) for the ten months ended 30th September 1890, pp 7, 8

Report on the Health of Tamsui and Kelung for the three years ended 30th September 1890, pp 9-15

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
PEKING

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The Contributors to this Volume are —

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Chinkiang

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WILLIAM KIRK, M D , M CH

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Tamsui and Kelung

W MORRISON, M B , C H M

Newchwang

HENRY LAYNG, M R C S , L R C P

Swatow

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# DR J A LYNCH'S REPORT ON THE HEALTH OF CHINKIANG

For the Year ended 30th September 1890

METEOROLOGICAL TABLE, September 1889 to September 1890

MONTH	WIND						BAROMETER		THERMOMETER		RAIN	
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Highest	Lowest	Highest	Lowest	No of Days	Quantity
1889							<i>Inches</i>	<i>Inches</i>	°	°		<i>Inches</i>
September	14	8	1	3	4		30.42	29.75	96	58	10	4.92
October	7	9		2	12	1	30.63	29.87	83	40	13	7.47
November	10	13	6			1	30.84	29.95	67	35	4	1.24
December	7	3	1	9	11		30.93	30.19	57	25		
1890												
January	15	2	1	6	7		30.96	30.10	54	27	4	1.18
February	14	6		3	5		31.00	29.82	67	30	8	1.95
March	15	6		3	7		30.90	29.93	61	30	8	4.19
April	5	8	4	2	11		30.53	29.65	84	47	10	4.93
May	8	11	2		10		30.40	29.74	93	48	7	3.98
June	2	17	1		10		29.95	29.70	97	63	11	5.55
July	2	19	4	2	4		29.84	29.65	95	67	7	4.61
August	7	10		2	12		29.95	29.70	96	70	6	4.41
September	14	5		1	10		30.16	29.80	90	60	2	2.42

NOTE.—Readings at 3 A.M., 9 A.M., 3 P.M. and 9 P.M.

During the past 12 months three births occurred among the foreign population of this port. The deaths were also three in number: a child, from acute tuberculosis, an adult, from small-pox, and an infant of three weeks old, from inanition.

This last was a curious case. The child was born at full time. The quantity and quality of the milk, the formation of the nipple and of the infant's mouth were quite normal, yet it was found impossible to induce it to take the breast. Artificial feeding proved a failure. Diarrhœa supervened, and the infant rapidly sank.

The following have been the chief cases of illness —

Small-pox	4	Pneumonia	1
Typhoid fever	2	Laryngeal and bronchial catarrhs	5
Measles	4	Gout	1
Influenza	5	Tonsillitis	3
Acute tuberculosis	1	Summer diarrhœa	5
Malarial intermittent	1	Chronic diarrhœa	2

Three cases of small-pox were treated in March. In one the eruption was confluent, but the patient made an excellent recovery. He had been vaccinated in infancy, two faint cicatrices were visible. The other two were mild attacks of varioloid. On the first appearance of the outbreak the members of the Customs staff and most of the other foreign residents were vaccinated. It is needless to say that no freshly-vaccinated person was attacked.

A severe and rapidly-fatal case occurred in May —

Miss A, 28, missionary, recently arrived from Yang chow, where she had nursed a small-pox case, was seen on Friday, 9th May. Had been ill since Wednesday evening with fever and pain in the back. Temperature 102°. A few red spots of doubtful character on left arm and chest. Had not been vaccinated since childhood, two distinct marks.

On the 10th and 11th a copious papular rash came out, covering the whole body. The temperature kept at 104°. There was much præcordial pain, constant vomiting, sleeplessness and delirium.

On the 12th the temperature fell 1 degree, none of the other symptoms abating.

On the 14th the eruption had become vesicular, with large confluent areas. Throat very sore, tongue dry and black. Temperature 102°-103°.

On the 15th black patches of hæmorrhage began to make their appearance beneath the vesicles, chiefly on inner and outer surfaces of thighs. Temperature 101°-102°. Pulse 112, feeble. Little delirium.

On the 16th the hæmorrhagic patches had increased greatly in size, and were spreading on the trunk. Swallowing was extremely difficult and brought on hiccough. Pulse 120, regular, very feeble. Temperature 98°.

Next day she died.

The above case will be recognised as belonging to the variety known as "hæmorrhagic vesicular," the connecting link between confluent and "black" small-pox.

Towards the end of March influenza paid us a visit. The few cases among the foreign residents were not of a serious character. The treatment adopted consisted in rest and the administration of a placebo. Among the Chinese, however, it raged with considerable violence and was the cause of many deaths.

The summer has been exceptionally mild, with cool nights throughout, and neither the health nor comfort of the residents was much affected by the heat. A severe epidemic of cholera is reported from Yang-chow, but in the immediate neighbourhood of Chinkiang the mortality

has been much smaller than in former years. It is a very remarkable fact that no case of Asiatic cholera has ever been recorded among the foreign community.

Cases of beriberi are met with every summer, though the disease does not seem to be very widely prevalent. Both the "wet," or acute, and the "dry," or chronic, forms are found. There is an impression, I think, that only adults suffer from this disease, but three fatal cases, which I saw in the summer of 1889, were all in children under 12 years of age. The symptoms of this curious malady form a perfect clinical picture of multiple neuritis. Moreover, there is little room for doubt that its essential cause is a specific micro-organism. Of course, it is impossible to verify such a hypothesis in China.

The following case of retained ovum may be of interest —

Mrs. B, foreigner, multipara, was attended in her fourth confinement in April. She had gone a little past her full time, but felt sure the child was dead, as she had felt no foetal movements since the seventh month. After a few feeble pains the ovum was expelled entire. On tearing open the membranes, two sodden and shrivelled foetuses, apparently of the fifth month, were found attached to a common placenta. The cords were remarkably long, and were tightly tied about the middle of their length in a veritable Gordian knot. The abnormal length of the cords, and consequent abnormal mobility of the foetuses, had resulted in mutual strangulation. There was not the slightest evidence of putrefaction. The mother recovered without a bad symptom.

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# DR E A ALDRIDGE'S REPORT ON THE HEALTH OF ICHANG

For the Half-year ended 30th September 1890

THE following abstract is from the meteorological observations taken at the Custom House —

METEOROLOGICAL TABLE, April to September 1890

MONTH	THERMOMETER				BAROMETER		RAINFALL	
	Highest	Lowest	Average Highest	Average Lowest	Highest	Lowest	No of Days	Quantity
	°	°	°	°	Inches	Inches		Inches
April	90 0	45 5	74 5	57 0	30 32	29 40	13	8 01
May	95 0	47 5	78 5	64 1	30 13	29 58	12	5 68
June	101 5	64 5	86 4	71 4	29 80	29 51	8	4 44
July	99 3	72 2	90 5	76 5	29 72	29 42	17	13 50
August	99 5	69 5	92 7	76 0	29 86	29 56	9	3 24
September	95 8	58 5	88 0	68 0	30 11	29 71	5	0 83

The site of the town of Ichang (latitude, 30° 14' 25" N, longitude, 111° 18' 34" E), well above high-water mark, on the north bank of the River Yangtze, is a good one, so that drainage and other sanitary arrangements might be simply and effectually carried out. At present, however, the system adopted is worse than useless, for drains that leak on all sides are laid along the streets and are never flushed, except by heavy rain.

Foreigners reside outside the South Gate, and most of them enjoy a good river frontage, their houses are dry, well drained and may be considered healthy.

During the period under review the following cases among foreigners were attended —

Ague	8	Influenza	7
Cholera	1	Hæmorrhoids	1
Muco-purulent ophthalmia	3	Hepatic congestion	2
Dysentery	2	Ulcers of leg	1

The above list is not satisfactory for such a small community. Though malarial poisoning was not absent, it fortunately was only productive of a fever of a mild and intermittent type;

whereas among the native population it very frequently caused remittent fever of severe character

The case of a very old resident in China presented the symptoms of Asiatic cholera. He had been accustomed to drink water unboiled and unfiltered. Had purulent diarrhoea two or three days, and sleepless nights. When seen, vomiting and purging had been going on two hours, the body was cold and damp, temperature subnormal, pulse, feeble and running, 140, cheeks dusky, tips of fingers bloodless, vomit and stools characteristic, thirst, pains in limbs, restlessness, and apprehension of impending death. Spirits of camphor in full doses, a little brandy and acidulated effervescent drinks were administered, sinapisms over heart and calves of legs were applied, and, later on,  $\frac{1}{2}$  grain of morphia was injected. Reaction set in well, with only a slight relapse after five hours. On the third day vomiting and diarrhoea occurred after taking some hot soup. Recovery was interrupted by hepatic disturbance, and was followed by a crop of large boils, which formed an almost complete belt round the body at the level of the epigastrium.

Dysentery was treated by a large dose of ipecacuanha, preceded by opium. In the first case it was contracted while travelling down the river, in the second, the patient had been working among foul-smelling, wet silk, and, supposing he had diarrhoea, took two pills and an enema before applying for relief.

The influenza epidemic, which reached Ichang in April, differed only from that which I personally experienced and witnessed in London at the beginning of the year in the mildness of the chest symptoms, which never indicated more than slight bronchial inflammation. There were observed here, in one case or another, the same sudden invasion and rapid rise of temperature, frontal headache, conjunctival injection, sore throat, epistaxis, earache, severe aching of bones and general prostration amounting to inability to turn over in bed, abdominal pain and subsequent debility.

The summer has been exceptionally mild and pleasant, but, as often noticed at the river ports, such a season does not necessarily prove healthy, rather, indeed, may the reverse be expected. The natives affirm that there has not been so high a rate of mortality among them for upwards of 20 years. They have suffered greatly from malarial fevers, which have been extremely fatal, from the fact that whole households have been attacked, these fevers have naturally been considered contagious. But beyond influenza and a few cases of small-pox, nothing of that nature has been observed. Native treatment seems to have been almost useless, the administration of a necessary simple purgative in cases seen having been neglected. At the Shan-t'ang a large quantity of native medicines and as many as 20 to 30 coffins daily were given away, the great necessity for the latter certainly did not speak well for the efficacy of the drugs supplied. Foreigners did much good by bestowing quinine on the sick they came in contact with, and it is to be regretted that the knowledge of such a specific against malaria is not more general among the well-to-do Chinese, who are by no means backward with their money in showing practical sympathy with their suffering neighbours.

The heavy rains during July supplied plenty of moisture to the growing rice, in addition, the small reservoirs for storing water from the hills were allowed to empty themselves for irrigation purposes, and the crop was good. The wet weather was succeeded by an unusually dry August and September, the rainfall being only 3.24 and 0.83 inches respectively, and hence there was a general drying up of the paddy fields, which lie at the back of the town, between

it and the hills. This low ground, though quite a narrow belt, is probably the chief source of the malaria which attacks residents here. The epidemic of influenza may have had some share in producing the susceptibility to malarial influence.

The Church of Scotland Mission lately erected a small hospital in the city, and opened it shortly after my arrival, last March. There are a male and female ward, out-patient department, operating room and dispensary. The attendance has been good, the applicants numbering upwards of 3,000 during the six months. In August and September nearly half the patients who sought relief suffered from malarial fevers or their sequelæ, which were often severe—anaemia (partaking of the pernicious type), enlarged spleen (often the so-called ague-cake), hepatitis, jaundice, ascites and œdema of lower limbs being frequent. Cases of dysentery and cholera have been comparatively rare. Leprosy has not been met with, and elephantiasis only twice. Foul ulcers and skin affections, mostly parasitic, though often of a low, tubercular nature, have constituted a large proportion of the diseases treated.

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## DR WILLIAM KIRK'S REPORT ON THE HEALTH OF HOIHOW (KIUNGCHOW)

For the Ten Months ended 30th September 1890

SINCE my arrival in Hoihow—in November 1889—the health of the foreign community has been good. No deaths occurred, and there were few cases of serious illness, excepting a short visit from the influenza epidemic, no other epidemic or endemic disease prevailed. No case of cholera was reported, a circumstance rather unusual. Several minor accidents and cases for operation came under my notice, but few of particular interest.

The weather was favourable to health, the summer months unusually mild and the nights comparatively cool. The two hottest days were the 3rd August and the 3rd September, the thermometer standing at 95° and 94° respectively. The usual afternoon thunderstorms, accompanied by much rain, commenced early in the spring and were of frequent occurrence throughout the summer. These heavy showers are a great boon, serving as they do to cool the atmosphere and to clear from the drains, sewers, etc., the accumulations of sewage and other offensive matters which are allowed to collect there.

Dysentery and diarrhoea approaching dysentery were almost entirely absent, probably due to the fact that there was no excessive range of temperature.

In the winter and early in the spring the influenza epidemic made its appearance, but in a comparatively mild form. Many natives, especially soldiers in barracks and people living in crowded districts, were attacked, but few deaths were reported.

The usual symptoms were slight fever, headache, pain in the back and limbs, great depression and general weakness, slight cough and sore throat. The treatment I adopted consisted of a few days' confinement to the house, attention to the bowels, antipyin for the fever and pain and an expectorant for the cough.

In March a missionary was brought from the interior suffering from an attack of pneumonia, affecting both lungs.

He had already been ill seven or eight days, was much emaciated and profoundly exhausted. The temperature for the first few days ranged from 104° to 105°, the pulse rapid and very weak. At times he was delirious. The usual symptoms were present, and the physical signs were clearly marked. Under the usual treatment and careful nursing he did very well, but it was only after a prolonged visit to Macao that his health and strength were fairly restored.

An intractable form of skin disease of the scrotum and parts about came under my notice during the hot months of the summer.

The case at first appeared to be one of local erythema, due probably to the friction of the dress producing a chafe or to the rubbing together of the two surfaces of skin. The symptoms then present were simply diffuse redness, itchiness and tingling and a slight serous discharge. As treatment, mildly astringent and sedative lotions and dusting powders of various kinds were tried, but without the desired result. This condition of affairs lasted for six weeks, when the disease took on a new aspect. The redness



became more intense, the skin sodden, there was much pain and tenderness on the slightest movement, the orifices of the sebaceous glands were much enlarged, and a copious, ill-smelling, only discharge was substituted for the previous serous oozing. Different applications were again tried, but the disease baffled all treatment, and it was only when the cool weather set in, three months later, that the symptoms began slowly to subside.

The only surgical case of any interest is the following —

During the New Year celebrations, when there was much cracker-firing and gun practice, a coolie was brought to me suffering severely from the effects of a gunpowder explosion. The gun, a smooth bore, muzzle-loader, had been fired once, and preparations were being made to fire it again. The charge, simply powder, was being rammed home, when it suddenly went off. The gunner was thrown several yards distant, and lay on the ground mutilated and insensible. He was badly injured in many places, but the left arm and hand suffered most. Most of the structures on anterior part of lower third of arm and palmar surface of hand were torn away. The radius and ulna, splintered in many places, were here and there exposed, and fragments of the ramrod and other foreign matters were deeply embedded in the wounds. After freeing the parts from the broken leaves, which his comrades had used to arrest the hæmorrhage, and from as much as possible of the powder and other foreign substances, I thoroughly cleansed with carbolic lotion, sutured where a suture was possible, and dressed with carbolic oil. With the addition of iodoform, this dressing was repeated at intervals during the following four weeks. The case did remarkably well, but owing to the prolonged rest, the great destruction of tissues and the resulting cicatrix, the wrist joint became firmly ankylosed.

The appended abstract is taken from the Custom House meteorological tables —

METEOROLOGICAL TABLE, January to September 1890

MONTH	THERMOMETER		RAIN		BAROMETER	
	Maximum	Minimum	Number of Hours	Quantity	Highest	Lowest
	°	°		<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
January	75	53	127	3.69	30.35	29.92
February	88	61	14	0.25	30.36	29.76
March	85	55	55	1.23	30.34	29.87
April	93	61	32	7.21	30.23	29.80
May	94	75	64	9.57	30.00	29.79
June	93	76	35	4.04	29.94	29.74
July	93	76	14	1.92	29.96	29.70
August	95	74	20	5.15	29.98	29.75
September	94	66	61	7.46	30.00	29.68

## DR ALEXANDER RENNIE'S REPORT ON THE HEALTH OF TAMSUI AND KELUNG

For the Three Years ended 30th September 1890

DURING the period under review the health of the foreign community has been fairly satisfactory, with the exception of the usual prevalence of malarial fever. The summer of 1890 has been very cool, the thermometer on no occasion registering over  $95^{\circ}$ , while in 1888 and 1889 a temperature of  $99^{\circ}$  or  $100^{\circ}$  was reached on several days. In spite of the moderate temperature, however, the average amount of sickness prevailed during the summer months. As a general rule, the frequency and intensity of diseases of malarial origin may here be estimated by the degree of solar heat, but this standard is liable to be modified by the amount of rainfall preceding the hot period and also by the extreme variations between the daily and nightly temperatures. This latter factor would seem to determine the attacks of fever experienced here in late autumn, when the weather is dry and bracing, but when the range of variation between the day and night readings of the thermometer sometimes exceeds  $20^{\circ}$ .

As in former years, the disease has been almost confined to residents at the port. The immunity enjoyed by residents in Twatutia may be explained by several causes —

1 *Absence of Rank Vegetation* — The plain on which the town is built is exceedingly fertile, bearing rich crops of sugar cane, rice, indigo, etc., so that every patch is cultivated and no waste land is to be found in the neighbourhood of the Settlement. In the immediate neighbourhood of the port, on the contrary, vegetation is rank, banyan trees thrive on the hillside, with a dense undergrowth of shrubs and creepers, while the surrounding country presents large tracts of uncultivated ridges, with well-watered paddy fields between.

2 *The Nature of the Soil* — Beneath the surface soil of the plain sand extends to a considerable depth. Artesian wells have been bored to a depth of 118 feet without encountering rock, penetrating a 30 foot layer of sand, and under that a bed of clay. The soil is therefore porous, and surface water quickly drains off. The volcanic soil of the port, on the other hand, is, on the surface, of the nature of clay—stiff and tenacious after rainfall, hard and baked in dry weather, with cracks leading to the damp subsoil. It has now come to be pretty generally admitted that efficient subsoil drainage is the most important factor in rendering a malarial soil healthy.

3 *Absence of Tidal Mudflats* — 10 miles inland, where the town of Twatutia is situated, the tidal influence is slight, so that at low water there are no large tracts of exposed mud, as at the outlet of the river.

4 *The Houses occupied by Foreigners are all of Two Stories*—Although the physical conditions above alluded to exercise an undoubted influence in securing a healthy environment, the condition of the dwellings must be regarded as still more important. Natives living in ordinary Chinese houses suffer to a somewhat less extent than their brethren living under similar conditions at Tamsui, but by no means present the contrast in this respect that well-housed foreigners do when compared with those occupying bungalows at the port. During the two years 1888 and 1889, among 18 foreigners residing at Twatutia only two cases of fever came under my observation, and these but slight, whereas during the same period at Tamsui every occupant of a one storied house suffered from one or more attacks. Of course, it may be said that the field of observation here is too limited to enable any wide generalisation to be made, but so far as our experience goes it amply confirms the truth of this fact, so well recognised elsewhere.

During the past decade views as to the essential cause of malarial diseases have considerably changed, but prophylaxis and treatment remain the same. Whether we hold that malaria is a "telluric poison" of a gaseous nature, or that it acts in virtue of a "living ferment," the fact remains that the maximum of danger is in the evening and early morning, and that the influence of the morbid agent diminishes as elevation above the level of the ground increases.

During the past three years I have, in the treatment of fevers, made extensive trial of antipyrin and antifebrin, and have reason to be well satisfied with the results. Although, unlike quinine, they exert no specific influence, they are invaluable in the sudden access of fever in intermittent and remittent attacks, accelerating the sweating stage and relieving the oppressive head symptoms. During the past summer I was called to three cases of intermittent fever, where the temperature ranged from  $106^{\circ}5$  to  $107^{\circ}$ . In from 10 to 15 minutes after the administration of antifebrin perspiration was profuse, and the temperature rapidly declined, with comparative comfort to the patient. In remittent cases I find it a good rule to administer a dose whenever the thermometer registers over  $103^{\circ}$ , and follow up with a full dose of quinine on the consequent fall of temperature, provided the ordinary remissions are not well marked. Among Chinese from the mainland I occasionally come across a fatal form of fever, where remission is exceedingly slight or imperceptible, with a persistent temperature of  $104^{\circ}$  or  $105^{\circ}$ . The patient has not been exposed to the sun, nor does he present symptoms of enteric fever. He has usually been five or more days under native treatment, is exceedingly wakeful and occasionally delirious. Such are probably cases of remittent fever where, from neglect of proper treatment at the outset, the characteristic remissions are lost. At this stage quinine is absolutely without effect. An occasional dose of antifebrin affords considerable relief, and, with the administration of hypnotics, constitutes the only efficient medicinal treatment. In 6-grain doses, dissolved in 40 minims of rectified spirit and then diluted, the action of antifebrin is prompt and reliable. Thus administered I have not observed toxic symptoms except in one or two instances, where too frequent repetition of the dose produced slight cyanosis and feeble pulse. In cases of neuralgia and brow-ache of malarial origin antipyrin is usually more efficient in relieving pain, the patient continuing to take small doses of arsenic.

Where quinine is not taken in solution, I think a decided preference should be given to tabloids or gelatine-coated pills. Then action is prompt as compared with pearl-coated pills, which are apt, as I have seen in subjects of feeble digestion, to pass through the system unabsorbed.

During April and May of 1890 many cases of influenza occurred among the natives, but most of the foreigners escaped. The leading symptoms were fever, ranging up to  $103^{\circ}$  or more, ushered in by chilliness and muscular pains and followed by catarrhal symptoms, chiefly bronchial, and much depression. The average duration of the disease was about seven days. The headache and lumbar pains, so well marked in cases in Europe, were by no means prominent symptoms—in fact, the disease more resembled an attack of malarial fever, with bronchial catarrh superadded. The natives were rather at a loss to account for the nature of the disease at the outset, as at this season of the year cases of fever are not common, and chest complaints unusual.

During the period under review three births and one death were recorded. Three deaths also occurred among non-residents.

1. *Death from Fracture of the Skull*—C. A., aged 26, Norwegian sailor. At 3 A. M. on 13th March 1888 arrived by rapid boat from Kelung, where he had been injured on the previous day. It appears that during a scuffle he had fallen down the hold of a ship, alighting on his head among iron rails. At 9 A. M. his condition was as follows—Face flushed, skin hot and dry. Temperature in axilla  $104^{\circ} 8$ , pulse 120, respiration 48. Patient almost unconscious. Pupils equal and abnormally sensitive to light. Coughs occasionally, no phlegm expectorated. Is very restless, when touched he commences to push with his hands and to kick off the bedclothes, then tosses to and fro and keeps aimlessly feeling his genital organs—a most persistent symptom. On the scalp, over the right occipital region, is a contused wound 2 inches long, running from the vertex backwards. Pressure here causes intense pain, so, in a less degree, pressure along the spine. Fracture of the skull suspected, but not ascertained. Dulness and crepitation over the base of the right lung from the fifth rib downwards. Heart sounds loud all over the chest. No fracture of the ribs.

6 30 P. M.—Pulse rapid and feeble. Temperature  $103^{\circ} 2$ . Patient quiet. Sweating. Slight stertor and puffing of the cheeks. Has taken a little nourishment. Bowels moved after taking 2 drops of croton oil.

14th March—Somewhat improved. Respiration less rapid. Temperature  $102^{\circ}$ . Crepitation over the left side of the chest. Patient drowsy, but easily roused, when great restlessness is manifested—tearing the bedclothes and throwing his arms about.

9 P. M.—Temperature  $101^{\circ}$ . Pulse 110. Has taken nourishment frequently.

15th March—Has passed a good night. Can reply to simple questions. Complaints of pain in the head and left side of body. Ideas confused.

6 P. M.—Has relapsed into unconsciousness. Breathing slow and stertorous. Pulse irregular. Eyes insensible to light, covered with film of mucus, right pupil dilated. Loss of power in left arm and leg.

16th March—Temperature  $101^{\circ}$ . Quite unconscious. Right pupil much dilated. When stimulated moves right arm feebly.

6 P. M.—Complete paralysis of limbs. Laboured breathing.

Died at 11 P. M.

*Postmortem Examination*—On removing the scalp much effused blood found in occipital region, especially towards the right side. For a space of 2 inches there is separation of the suture between occipital and right parietal bones, and also slight separation of the suture between occipital and right temporal bones. A linear fissure runs transversely across the superior angle of the occipital bone. Much effused blood found between the dura mater and the temporal bone, especially over the petrous portion. The whole right side of the brain on its outer and under aspect is bruised. Signs of inflammation are visible in the cortical substance of the temporo-sphenoidal lobe, which contains a little pus mixed with blood. Left side of brain apparently healthy. No disease of ventricles or other parts. Both lungs much congested. Large amount of mucus in the bronchi. Heart healthy. Left ventricle empty, right ventricle contains some dark blood. Contents of abdomen healthy, with exception of the spleen, which is enlarged and softened.

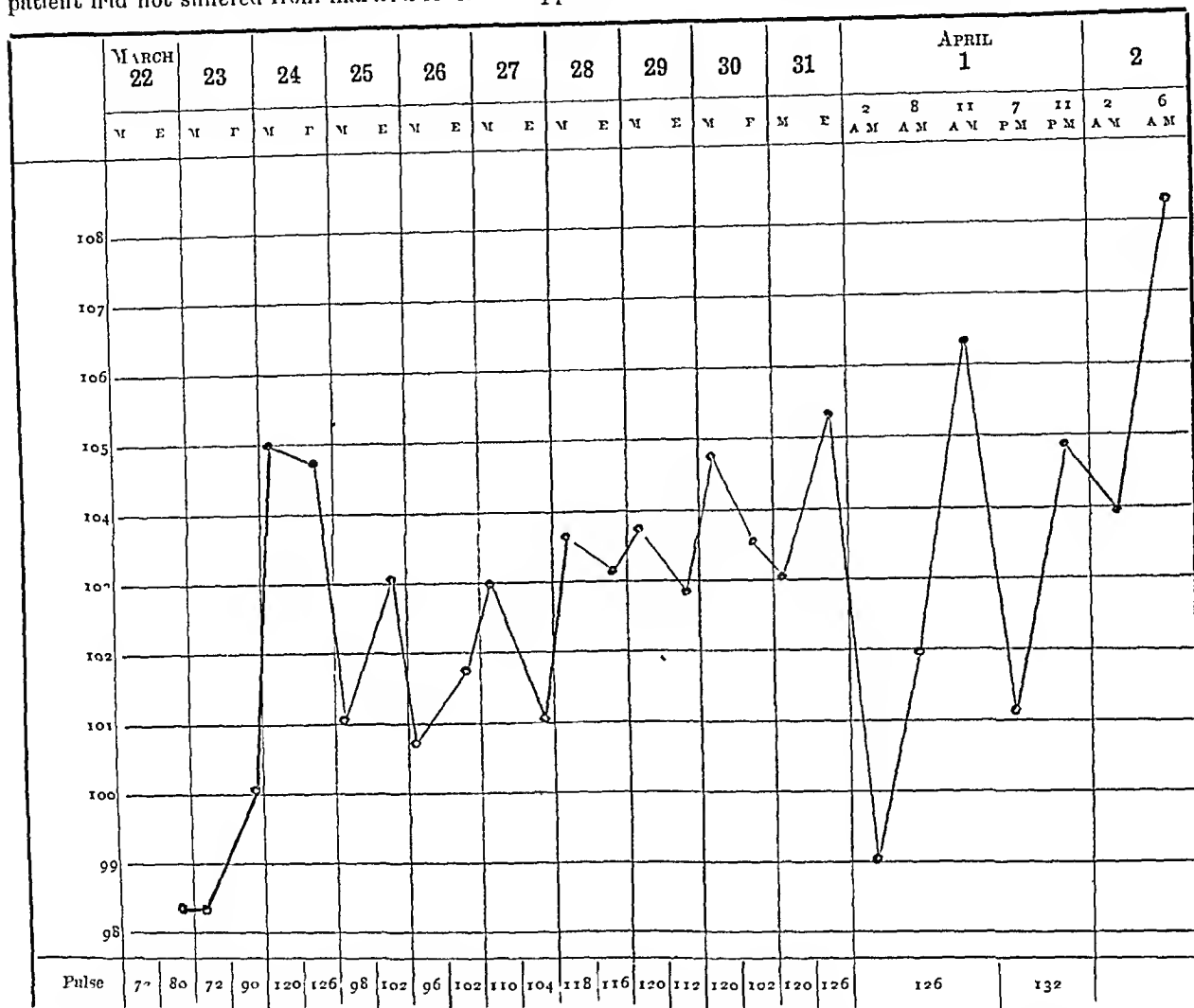
*Remarks*—Death evidently resulted from fracture of the skull, accompanied by extravasation of blood, bruising, and inflammation of the brain substance on the right side. The symptoms observed during life were, primarily, those of irritation of the cortex of the cerebrum and its membranes, and congestion of the lungs. On the day preceding death a short period of reaction, followed by symptoms of compression, modified the symptoms of the earlier stage. The restless and violent movements of the limbs pointed to extensive irritation of the motor area. On the day preceding death the left hemiplegia and dilatation of the right pupil localised the lesion more precisely in the right hemisphere.

2 *Death from Cholera*—At 7 P.M. on 20th July 1888 I saw G. S., aged 34, engineer on board a steamer arrived from Amoy. Patient stated that he had been suffering from looseness of the bowels for about five days, this having commenced during the stay of the steamer in Hongkong. He attributed the cause to some German beer he had drunk there. On his way up the coast he improved somewhat and was able to be on duty, but some hours after leaving Amoy for this port he was seized with violent pains in the bowels and diarrhoea, which persisted until the arrival of the vessel here, some 12 hours afterwards. The exact character of the motions he had not observed, but stated they were watery. When I saw him the skin was cold, eyes sunken, face pinched and voice feeble. Patient, however, expressed himself as feeling much better. Bowels not moved for over an hour. He was removed to bed, but by this time cramps were setting in, and one characteristic rice-water stool was passed. Small doses of iced brandy were administered from time to time and retained, while hypodermic injections of morphia, sinapisms and friction were employed to relieve the pains. Patient rallied somewhat at 8.45, but gradually sank, and died at 10 the same evening.

The deceased had lived in China about two and a half years, and had always been a careful liver. Whether the exciting cause may have been as he surmised it is difficult to say, but free drinking of iced beer is unsafe in hot weather. I have several times seen such an indulgence followed by diarrhoea and cutting abdominal pains. For a few days subsequent to this death two foreign members of the crew suffered from slight diarrhoea, which was undoubtedly of nervous origin, and well illustrated the influence of the mind on the functions of the body.

3 *Death from Puerperal Fever*—The patient, a primipara, underwent a normal, but very tedious, labour. No retained placenta or membranes. On the evening of the second day the temperature rose to 101° 2, and reached 105° on the following morning. In spite of the high temperature the strength was well maintained until the afternoon of the tenth day, when a series of rigors, followed by corresponding rises of temperature, led up to a fatal termination on the morning of the twelfth day (temperature 108° 4). On the morning of the third day there was considerable abdominal tenderness, which, however, disappeared the same day after free movement of the bowels. Antiseptic injections were used from the outset, and the lochia were normal, but rather scanty. The leading symptoms were headache and discomfort from the high temperature, the patient was otherwise free from pain, and the mind remained clear until the last day.

The source of the septicæmia I could not trace. During her stay in China (a period of 14 months) the patient had not suffered from malarial fever. I append a chart of the course of the disease —



4 *Death from Heat Apoplexy (doubtful)*—The patient was an engineer, apparently about 40 years of age and of good physique. When I saw him on board ship, on 24th June 1890, he was suffering from alcoholism. He had delusions, was sleepless, restless, but not violent. Alcohol was prohibited, and sedatives administered. On the following day, when the steamer left for Kelung, he had slept and was much more composed. It appears that he gradually improved, and on the morning of the 28th went on duty. About 9 A.M., however, the old delusions returned, and the patient kept aimlessly wandering about the decks until ordered to retire to his room, which he soon left and lay down in the alley-way. He seemed to sleep until 120 P.M., when the man on watch observed that the breathing was heavy, and immediately called assistance. Death occurred shortly afterwards. Those present agree in stating that the body was intensely hot and remained so for some time after death, unfortunately, no more exact temperature record was made.

Whether or not the deceased indulged in a fresh debauch on the morning of his death is not known, but on the supposition that high body temperature existed, it is just possible that he had incurred heat apoplexy, an accident to which at this season of the year his condition would have rendered him peculiarly liable.

Work in the native hospital has been carried on as actively as before, and the number of admissions has steadily increased. Distance precludes many from taking advantage of the institution—a drawback which the present railway extension in the island will greatly tend to remove. As it is, many come a distance of five or six days' journey, especially such as are anxious to undergo operation for the removal of tumours.

Owing to the introduction of foreign machinery and appliances, accidents during the past three years have been more numerous. On the railway track, which is frequented as a public pathway, a few fatal accidents have occurred, chiefly in the case of deaf or blind persons who have inadvertently stepped in front of a train. One or two serious accidents in the saw-mills, due to clothing getting entangled in the wheels, served to show those more immediately connected with machinery the necessity of adapting their clothes to the foreign pattern, especially in the narrower cut of the sleeves. When we remember that until four years ago the natives were quite unacquainted with railways and complicated machinery, and consider the callous manner in which the average Chinaman handles dangerous instruments and explosives, the wonder is that accidents are not more frequent—in fact, foreigners who have been employed in European workshops observe that the Chinaman is remarkably fortunate in this respect.

Almost every year, at some part of the border, warfare is carried on between the Government and the aborigines. In the autumn of 1888 the fighting was of an unusually severe nature, and many Chinese were killed and wounded. The savage, as usual, took advantage of the thick cover, avoiding the open, so that hand-to-hand fighting did not take place. Concealed, he waits until his enemy is within easy range, takes careful aim, and after firing quickly crawls a few yards from the spot, so that, if the shot be returned, his whereabouts may not be known. Should the wound inflicted not prove fatal, he despatches his victim with the knife. For fighting purposes the border savages now regard their bows and arrows as obsolete, they are well provided with jingals and old muzzle-loading rifles, chiefly obtained by barter from the border Chinamen. Their gunpowder comes from the same source, and as it is a scarce commodity the savage does not readily waste a shot. On the present occasion the approaches to a village were studded by the savages with sharp-pointed spikes of bamboo carefully covered by the grass, so that not a few of the Chinese soldiers sustained severe penetrating wounds of the feet and legs.

On the 2nd September 22 of the wounded arrived by steamer from Pinam, the seat of war, on the east coast. The injuries comprised —

Gunshot wound of the thigh	4
„ „ „ arm	2
„ „ „ neck	2
„ „ „ leg	1
„ „ „ hand with injury to bones	2
„ „ „ shoulder with injury to bones	3
„ „ „ head and face with injury to bones	6
„ „ causing compound fracture of the leg	1
„ „ of the knee-joint	1

The wounds were eight days old, and as they had been neglected in the interim the fetor was almost unbearable. 13 submitted to the removal of bullets or fragments of bone—an operation rendered, in most cases, rather difficult on account of the small and irregular character

of the shot, the depth of penetration and the pockets caused by the burrowing of pus. The shot varied in weight from 35 grains to about an ounce, was of irregular shape, consisting of fragments of pot metal and hammered pieces of lead, which nevertheless penetrated deeply on account of the close range—usually about 20 yards. One shot, which had entered the neck, was found deep in the tissues beside the sixth dorsal vertebra, while an irregular piece of metal,  $1\frac{1}{4}$  by  $\frac{3}{4}$  inch, and weighing 6 drachms, had carried away the bridge of the nose and embedded itself in the superior maxilla. The patients who underwent operation made good recoveries. Of the others, one died from a compound fracture of the leg, which had not been set or dressed for eight days, another patient died from tetanus the day after arrival, the bullet having perforated the ball of the right thumb and shattered the proximal phalanx of the left.

I append a meteorological table for the 12 months ended 30th September 1890, for which I am indebted to Mr Harbour Master STEVENS. The rainfall for this period was 73.40 inches, which is a large amount as compared with most other ports, but small when compared with that of Kelung, which for the same period amounted to 144.86 inches, 54.47 inches having fallen between 1st October and 31st December.

METEOROLOGICAL TABLE, October 1889 to September 1890

MONTH	WIND					WEATHER			BAROMETER		THERMOMETER			
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Fog	No of Days Rain	Rainfall	Highest Reading	Lowest Reading	Highest Reading	Lowest Reading	Solar Rad Max	Ground Rad. Min
1889								Inches	Inches	Inches	°	°	°	°
October	8	2			21		11	4.42	30.26	29.76	95.0	62	160	61
November	21	2			7		20	9.34	30.48	29.97	80.0	56	145	54
December	19	2			10	1	12	2.52	30.45	30.03	76.0	47	145	46
1890														
January	19	2		2	8		21	10.76	30.43	29.95	73.0	43	145	41
February	13	6		3	6	5	7	1.98	31.39	29.80	77.0	49	144	47
March	23			4	4	8	19	14.47	30.49	29.95	80.0	45	154	44
April	8	4	1	6	11	3	6	2.51	30.23	29.87	87.0	48	155	45
May	14	4	2	2	9		13	7.07	30.10	29.83	87.0	63	157	60
June	1	6	6	1	16		8	4.21	30.04	29.85	92.5	69	166	69
July		10	11	1	9		7	7.41	30.05	28.65	94.0	72	162	72
August		5	8	1	17		7	3.77	30.06	29.75	95.0	72	163	75
September	24	1			5		13	4.94	30.05	29.73	92.0	66	165	64



# DR W MORRISON'S REPORT ON THE HEALTH OF NEWCHWANG

For the Year ended 30th September 1890

METEOROLOGICAL TABLE, October 1889 to September 1890

MONTH	ANEROID BAROMETER		NO OF DAYS ON WHICH THE TEMPERATURE FELL BELOW						NO OF DAYS ON WHICH THE TEMPERATURE ROSE ABOVE						No of Days on which Rain fell	Total Amount of Rainfall	No of Days on which Snow fell	No of Days on which there were Dust Storms	No of Days on which High Winds blew
	Highest	Lowest	°F -15	°F -10	°F 0	°F 10	°F 20	°F 32	°F 50	°F 60	°F 70	°F 80	°F 85	°F 90					
1889	Inches	Inches														Inches			
October*							1	4	7	19					2	2 00			1
November*							4	24	2						2	0 46	1		3
December	30 60	30 00				3	22	6									4		6
1890																			
January	30 70	30 00			9	14	6	2									2	1	3
February	30 78	29 80				7	11	10									2	1	7
March	30 50	29 97				1	4	20	6									3	10
April	30 60	29 55						2	24	4					2	0 40	1	1	9
May	30 30	29 50							3	12	14	2			1	0 50			4
June	29 90	29 35								1	19	6	4		3	1 50		3	5
July	30 00	29 47								5	14	11	1		12	2 97			2
August	29 85	29 56								2	14	10	5		7	3 91			3
September	30 20	29 70								15	15				3	0 87		1	4

\* Barometer out of order

The health of this community has been in a satisfactory condition during the year. During the earlier half of the year we had a number of cases of influenza, but neither its extent nor its severity would entitle the disease to be ranked as epidemic.

At the beginning of the open season we had a period of drought, limited to the lower reaches of the Liao. In the central and northern parts of the country more rain fell. The

crops were abundant and the people exceptionally prosperous. The dry period generally lasts from about the middle of April to the middle of June. Drought and dust are not the only discomforts. During the same period we have daily winds from the south-west of a blustering and unpleasant nature. This wind is purely local, being limited to the lower portion of the plain through which the Liao flows, though on other parts of the coast, where the physical conditions are similar, a like phenomenon may be observed. Each day this wind begins at sunrise and dies away with the close of day. The evenings, as a rule, are quite still. The influence of this meteorological condition on health is obvious: colds and sore throat are prevalent during the earlier part of the period. Exercise in the open air is circumscribed, though so necessary in a place where life has such a tendency to stagnate. The class I have observed to suffer most are convalescents recovering from operations or from severe sickness. Special precautions have to be taken to prevent their too early exposure.

Among the native population there has been much less poverty and sickness, no doubt owing to the commercial prosperity of the town.

There have been five births during the year—two males and three females,—all healthy and normal. Four deaths occurred from the following causes —

Chronic bronchitis  
Acute alcoholism

Influenza  
Typhus fever

## DR HENRY LAYNG'S REPORT ON THE HEALTH OF SWATOW

For the Half-year ended 30th September 1890

For the meteorological table I am indebted to the kindness of Captain C H PALMER,  
Harbour Master

METEOROLOGICAL TABLE, April to September 1890

MONTH	WIND					BAROMETER				THERMOMETER						WEATHER		
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Averages		No of Days Rain	Rainfall	No of Days Fog
														Wet Bulb	Dry Bulb			
D h	D h	D h	D h	D h	Inches	Inches	Inches	Inches	°	°	°	°	°	°	D h	Inch	D h	
April	4 18	14 12	2 12	1 6	7 0	30 204	29 758	30 150	29 860	85 0	63 0	81 0	62 0	65 0	72 0	0 23	2 60	7 0
May	7 0	12 18	2 18	2 12	6 0	30 150	29 730	30 120	29 780	85 0	68 0	81 0	70 0	77 9	78 3	3 1	4 59	3 0
June	2 12	12 18	9 18	1 0	4 0	30 030	29 800	30 050	29 840	88 0	75 0	87 0	74 0	77 2	80 0	3 12	10 30	
July	1 6	3 18	16 18	3 6	6 0	30 100	29 580	30 050	29 660	90 0	75 0	86 0	75 0	78 4	82 1	3 10	12 54	
August	2 15	4 12	13 0	6 0	4 18	30 070	29 750	30 030	29 780	91 0	80 0	85 0	78 0	78 9	83 5	0 9	1 51	
September	6 6	17 12	2 6	1 12	2 12	30 100	29 780	30 080	29 820	87 0	71 5	82 5	70 0	75 1	79 4	2 4	3 49	

The summer has been exceptionally cool and dry westerly winds were more frequent than usual There has been a marked absence of heavy gales

Considerable progress has been made in reclaiming foreshore No cases of sickness have occurred that could be traced to these operations

In April some few additional cases of epidemic influenza occurred among the foreign residents, and all through the summer, now and again, a case has been seen on board one of the steamers

Malarial fevers have been more frequent Several residents suffered from severe attacks of remittent fever The natives living in the villages on the south side of the river appear to have been the greatest sufferers, many deaths occurring Owing to the difficulty of keeping

Chinese patients suffering from fever closely under observation, one's means of obtaining reliable evidence was small, but the general story was one of daily fever, more severe at night, with an absence of all history of a cold stage

In the early months of the summer dysentery was very prevalent among the natives, three cases occurring among the foreign residents

One case of purpura hæmorrhagica in a native came under treatment, and one of purpura simplex, associated with severe acute dysentery, in a European child 8 years old

The health of the foreign children, with the single exception quoted above, has been, as usual, remarkably good

No cases of cholera have arisen in the port One officer of a steamer arrived here from Shanghai with cholera He was admitted into the Seamen's Hospital on 28th August, and discharged on 5th September

Among the minor complaints, tonsillitis and febricula have occurred with the greatest frequency The number of cases of diarrhoea and colic has been below the average

A case of belladonna poisoning, caused by the local application of glycerine of belladonna and belladonna and iodine ointment to an inflamed testicle, was seen on board a coasting steamer The patient had been using the application for about six days He complained of having passed a wretched night, that his mouth and tongue were as dry as a piece of cardboard, and that he could scarcely see The condition of the mouth was aptly described by the patient himself Vomiting had taken place once Both pupils were widely dilated, and there was great restlessness and nervousness, but no rash was anywhere visible The application of belladonna was at once discontinued, and all symptoms completely disappeared in 48 hours

There have been four births and no death

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CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31<sup>ST</sup> MARCH 1891.

41<sup>ST</sup> Issue.

PUBLISHED BY ORDER OF  
The Inspector General of Customs.

SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,  
AND SOLD BY

KELLY & WALSH LIMITED SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON P S KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S W

1894

[Price \$1]



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death

b—Diseases prevalent at

c—General type of disease, peculiarities and complications encountered, special treatment demanded

d—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

e—Peculiar diseases, especially leprosy

f—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.



3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Di \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

4—

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\*

\*

I am, etc,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Tainan,*  
*Kuiliang, Amoy,*  
*Chunliang, Swatow, and*  
*Shanghai, Canton*

---

SHANGHAI, 1st June 1894

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Hankow for the eighteen months ended 31st December 1890, pp 1-8

Report on the Health of Tainan, p 33,

Report on the Health of Shanghai, pp 36-46, each of these referring to the two years ended 31st March 1891

Report on the Health of Canton, pp 11-13,

Report on the Health of Amoy, p 19,

Report on the Health of Pakhoi, pp 31, 32, each of these referring to the year ended 31st March 1891

Report on the Health of Chinkiang, pp 9, 10,

Report on the Health of Ningpo, p 14,

Rapport sanitaire du district douanier de Lappa, pp 15-18,

Report on the Health of Tientsin, p 20,

Report on the Health of Kiuikiang, pp 21-28,

Report on the Health of Ichang, pp 29, 30,

Report on the Health of Chefoo, pp 34, 35, each of these referring to the half-year ended 31st March 1891

I have the honour to be,

SIR, .

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
PEKING

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The Contributors to this Volume are —

C BEGG, M B, C M E d	Hankow
J A LYNCH, M D, M C H	Chinkiang
J F WALES, B A, M D, C H M	Canton
C C DE BURGH DALY, M B, B C H	Ningpo
G S	Lappa
B STEWART RINGER, M D, M R C S, L S A	Amoy
A IRWIN, F R C S I	Tientsin
GEORGE R UNDERWOOD, M B, C M, L R C S E d	Kiukiang
E A ALDRIDGE, L M & L K & Q C P I, M R C S	Ichang
A SHARP DEANE, L K & Q C P, L R C S I	Pakhoi
W WYKEHAM MYERS, M B, C H M	Tanan
W A HENDERSON, L R C S E d, L R C P E d	Chefoo
R ALEX JAMIESON, M A, M D, M R C P	Shanghai

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# DR C BEGG'S REPORT ON THE HEALTH OF HANKOW

For the Eighteen Months ended 31st December 1890

METEOROLOGICAL TABLE, July 1889 to December 1890

MONTH	WIND					BAROMETER		THERMOMETER		SOLAR RAD		RAIN	
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	Highest	Lowest	Highest	Lowest	Highest	Lowest	No of Days	Quantity
1889						<i>Inches</i>	<i>Inches</i>	°	°	°	°		<i>Inches</i>
July	5	5	9	1	11	29 734	29 446	102 0	68 0	151 0	97 5	10	6 67
August	11	8			12	29 896	29 514	99 5	70 0	147 0	133 0	8	3 20
September	12	3		5	10	30 534	29 600	96 0	62 0	148 0	73 0	18	12 39
October	13	4		6	8	30 286	29 760	84 0	48 0	134 0	65 0	18	9 04
November	21	4		3	2	30 522	29 848	67 0	37 0	120 0	55 0	13	3 21
December	15	8	1	3	4	30 570	29 938	59 0	30 0	108 0	60 0	3	0 07
1890													
January	11	3	1	4	12	30 560	29 950	*	*	*	*	8	1 82
February	11	8	2	3	4	30 520	29 570	*	*	*	*	9	1 61
March	16	3		2	10	30 500	29 810	*	*	*	*	7	4 39
April	8	12	2	3	5	30 334	29 416	87 0	38 0	144 0	78 0	14	8 63
May	7	10	2	3	9	30 100	29 570	90 0	50 0	145 0	105 0	11	3 95
June	4	11	4	1	10	29 848	29 434	99 5	67 0	148 0	76 0	11	10 52
July	7	12	4		8	29 810	29 430	98 0	76 5	150 0	126 0	11	4 56
August	5	15		2	9	29 790	29 534	97 0	64 0	160 0	135 0	8	3 64
September	14	6		4	6	30 236	29 550	92 0	65 0	147 0	131 0		
October	15			8	8	30 253	29 836	86 0	52 0	139 0	90 0	1	0 20
November	17	1	1	1	10	30 382	29 810	78 0	35 0	128 0	64 0	6	1 35
December	16	5		4	6	30 532	29 664	64 0	26 0	107 0	51 0	12	1 99

\* No instruments

For the above meteorological table I am indebted to Mr Tidesurveyor R TRANNACK

During my absence for 15 months of the period under consideration the whole of the medical duties of the port fell to Dr THOMSON, who submits the following Report —

The summer of 1889 was a rather trying one Heavy rains in June were followed by intense heat in July During the first three days of July the readings of the maximum and minimum thermometers rose rapidly, and from this time onward we had a succession of very

hot days and nights For the period extending from the 4th to the 12th July the mean temperature, as calculated from the average of the maximum and minimum readings for each 24 hours, was  $92^{\circ} 2$  F The maximum temperature was reached on the 9th, and read  $102^{\circ}$  F in the shade

Between the mornings of the 9th and 11th four deaths occurred in the Settlement Three of the victims were from among the residents—one, an adult, whose death could in no way be attributed to climatic influences, two were infants, whose deaths were more or less directly traceable to conditions of climate and season

The fourth was an engineer on board one of the river steamers—a well-built, powerful man, of about 25 years of age,—and in his case the cause of death was heat prostration or sunstroke When first seen by me he was stretched on his back on the upper deck, with limbs flaccid, mouth open, breathing stertorously, skin burning, eyes fixed, pupils contracted and conjunctival reflex gone, pulse bounding and frequent. Temperature in axilla  $108^{\circ} 5$  F On questioning his shipmates I was told that he had been in China for about three weeks only, having come direct from Glasgow to Shanghai This was his first trip up river As a new-comer, he had evidently been rather careless of himself while on deck, with but a single awning between him and the blazing midday sun, and while on shore, he wore an ordinary sailor cap (no sun hat, no preserves for the eyes) He seems, too, to have suffered from constipation for some time previous On the afternoon of the day he was seized, after working hard in the engine-room, he came on deck, exhausted and perspiring, and freely exposed himself to the little breeze there was After resting awhile he returned to the engine-room, to finish the work he had been engaged upon, and then came back and had a cold bath on deck Feeling somewhat unwell after this, he went on shore to see the doctor Not finding the doctor at home, he left, intending to call again either that evening or next day On reaching the boat, however, he dropped, unconscious, and when seen by me, shortly afterwards, was in the condition described above In two and a half hours the temperature in the axilla had fallen to  $106^{\circ}$  F, but there was no sign of returning consciousness Approaching midnight, convulsions set in, the first seizure occurred while I was with another patient It was described as being very violent and general His tongue was badly bitten The second seizure occurred while I was present It affected first the face and muscles of mastication, the right arm, and afterwards, and to a less degree, the muscles of the back, giving rise to slight opisthotonus The pulse had now become much weaker, was irregular and intermittent, the countenance was livid, eyes fixed in the same glassy stare, though now the corneæ were dimmer. As he sank, gradually, the respirations became less noisy, convulsions less frequent and feeble He died about 2.30 A.M., between seven and eight hours after he dropped on deck, never having shown the slightest sign of consciousness from the time he fell

At the beginning of the outburst of heat above referred to the minds of some of the members of the community were further disturbed by a threatened rising among the Chinese The exposure incurred during a sudden flight and hasty return was no doubt a potent factor in the immediate cause of death in the case of one of the infants above mentioned

In July, August and September of 1889, besides cases of severe diarrhoea, there were several cases of acute dysentery among the residents All were successfully treated and cut short in the acute stage, with the exception of one case (male adult), which became chronic, and continued more or less troublesome until early in the spring of 1890 Since then he has been entirely free, having gone through the summer of 1890 without the suspicion of a return Several of the men on board H.B.M.S. *Merlin*, which was in this port part of July and August, suffered from dysentery and dysenteric diarrhoea Two had to be left behind in hospital Both had been ailing for some time, but made a fairly speedy recovery

Ague and remittent fevers seem to be of extremely rare occurrence among the residents, while among the patients attending the hospital for Chinese, ague (tertian, quartan, quotidian, in order of frequency) seems common enough. Among the European residents I remember having seen only one typical case of tertian ague during the past two summers, and it very speedily yielded to treatment.

Equally common among foreign residents and natives—or more marked in the case of foreign residents—is a sthenic type of fever, in which the temperature, as taken in the axilla, runs up to 103° or 104°, in many cases to 105°, and in rare cases to 106° and 107° F, in the course of a few hours. As must needs be from the suddenness of the rise in temperature, there is usually, to begin with, a feeling of chilliness. At the height of the disease the face is generally flushed, the pulse soft and frequent, the skin invariably hot and dry (“burning”), and headache, usually intense, is complained of. In such cases the bowels have generally been constipated or irregular in action for some days before the onset of the symptoms mentioned. Without entering into particulars, it may be stated, in a general way, that such fevers are most probably due to the absorption of some very poisonous ptomaines by the bowel. A dose of castor oil, or some such purgative sufficient to thoroughly clear the bowel, puts a stop to the further production of these ptomaines, and as the quantity already absorbed is being eliminated from the system, the symptoms gradually subside. In many cases this may be all the treatment required, but when the temperature is very high, the skin particularly burning and headache most intense, antifebrin has a wonderful effect. As a rule, for an adult, 5 grains of antifebrin dissolved in a little brandy and diluted with water, with or without 5 to 10 minims of tincture of digitalis, according to the circumstances of the case, has been followed by cessation of headache, profuse perspiration and quiet sleep of some hours’ duration, from which the patient awakes refreshed and well. In the majority of cases, where the bowels are attended to, the single dose suffices.

The autumn of 1889 was remarkable for the continued high state of the river. So late as October the water rose above the level of the bund and flooded the whole Concession. For weeks before this the underground drains were practically sealed, and the low-lying lots, covered with stagnant water and decaying vegetable and animal matters, were more or less converted into so many cesspools. So far as these, then, were concerned the further rise in October was to be welcomed. With all its inconveniences and disadvantages in other respects, and although the current sets from the Chinese city adjoining, the inundation was favourable to the health of the community. So offensive and so evidently injurious were these low-lying lots throughout the season that in November 1889 an address, signed by all the residents under whose notice it came, was forwarded to the Secretary of the Municipal Council, urging that the matter should be represented to the owners of these lots. Copies of this address were sent by the Council to each of the owners. Some, I am glad to say, immediately responded by having their lots raised to the ordinary level, while others have not yet seen their way to do the same.

The winter of 1889-90 was very mild. No ice was collected, and we had to depend on a supply from Tientsin for the following summer. In future the Hankow Ice Factory, just started, will, it is to be hoped, make us independent of fickle winter’s supply.

During the winter months no special epidemic occurred, but early in the spring there raged in the Chinese city an unusually severe epidemic of small-pox. Within the Settlement only two cases came under my notice.

The patient in the one case was a Chinaman employed in one of the hongs. He had never been vaccinated, and though his case was a pretty severe one—mixed discrete and confluent,—he showed no untoward symptom from beginning to end, and escaped without any noticeable pitting.

The other patient was a foreigner, and lived in a hong with many occupants. He was at once removed to hospital, and there isolated. His case is remarkable in that it appears to have been a second attack. He declared that he had had small-pox when a child, and showed at least one marked pit by the side of the nose. This time, at all events, he was covered from head to foot with typical small-pox rash, though, apart from the rash, his symptoms were of the mildest form. With the exception of a couple of days, when the rash was developing, he hardly felt sick, and, but for his appearance and the sake of others, would no doubt have considered confinement, even to his room, a hardship. He, too, escaped without any further permanent marking.

In the spring of 1890 there occurred one case of enteric fever.

The patient was a young adult male. For the first two or three days the temperature was anything but typical of enteric fever; it began high, and as small-pox was prevalent at the time, and one case had just appeared in the Settlement, I was inclined at first to believe that this might turn out a mild case of small-pox. It was not until the fourth day that one could have been sure of the true nature of the illness. The temperature tracing, too, seemed to make a new start on the third day of the illness, and after that the disease ran through the typical course of moderately severe enteric fever.

As comparative rarities I may mention a case of measles and a case of whooping-cough in adults that came under my notice last spring. The patient in the former case was an officer on one of the river boats. On the trip before this a child with measles had travelled on the steamer for a short distance. He said he never had had measles as a child, and this was a first attack. The patient with whooping-cough had it for the first time too, and caught infection while travelling with children suffering from the disease.

Influenza first made its appearance here in April, shortly after the first cases were reported from Shanghai. It certainly seemed to have been carried in the line of traffic from Shanghai, but then the great world-wide epidemic seems to have spread in a westerly direction, with less dependence on routes of trade and travel for its direction than would appear from this. In cases here the temperature averaged nearly a degree higher than in cases in England, judging from the reports that appeared in the medical journals. I cannot say that I saw any after consequences.

From July 1889 until May 1890 we had not to record a single death, but in May 1890 one of our most venerable residents passed away.

He died of liver abscess, complicated with acute croupous pneumonia. The abscess or abscesses burst into the hepatic flexure of the colon, and on three separate occasions large quantities of blood clot were passed by the bowel.

The summer of 1890 was very mild, but not particularly healthy. There were, as usual, cases of dysentery, summer diarrhoea, and the sthenic type of fever above referred to, but besides these, many who hardly ever felt sick before complained of a general feeling of malaise, which, however, led to no further development. During the hot months cholera was, as usual, reported among the natives in the city, but there was no epidemic of true Asiatic cholera, such as prevailed in Nagasaki and Shanghai. About the end of July a case of true Asiatic cholera on board one of the river boats was reported from Kiukiang. The boat was allowed to

proceed from Kiukiang, but was detained here below the harbour limit until inspected by the Medical Officer of the port. After inspection I was able to report that none of the passengers or crew showed any sign of being infected, and time bore me out in this, as no other case subsequently appeared on board. The ship, so far as appeared necessary, was disinfected, and proceeded on her way without loss of time. Early one morning in July I was called to a case that showed all the symptoms of a mild attack of cholera.

The patient—an adult male of about 30 years of age—was seized during the night with sudden diarrhoea, and in the course of a few hours was quite prostrate, with hollow eyes, vox cholericæ, cramps in lower extremities, and the stools, which were very frequent and free, were of the peculiar rice-water character. The attack soon yielded to treatment, and next day the patient was in his office attending to business.

In September one infant of 11 months died of acute dysentery. At the Kiukiang hills, on a former occasion, on slighter illness, he had shown a marked tendency to sudden collapse, and now, under the severer strain, he soon sank, the duration of the illness being within 24 hours. In marked contrast to this was the case of another infant that fought against enterocolitis, with teething, throughout the long summer months, and only in September, when in a very exhausted and worn condition, succumbed at last in Kiukiang, on his way to the hills, where he was being sent as a last resource.

For some weeks during the hot season the underground drains were again practically blocked from the high state of the river, and though some of the low-lying lots had been raised since the season of 1889, those that remained, and still remain, low were offensive enough.

During the whole period under consideration there were in all seven births (five males and two females) and six deaths (two adult males and four children from 10 to 15 months of age—three males and one female) among the residents proper, or, taking the year 1890 by itself, there were six births and three deaths (one adult and two children).

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On my return to Hankow, after 15 months' absence in England, I was in time to observe what appeared to be a second wave of "la grippe." I had seen something of this curious epidemic at home, and hardly feel justified in classing what I now saw among my patients as the same disease. I have found myself unable to distinguish it from ordinary influenza as we have been accustomed to see it, although observers all notice an elevation of temperature and a severity of after effects which lead them to make a distinction. To my mind it rather appears as if these were due to a greater severity, the result of its being able to attack so many at once, and I feel inclined to attribute the chance it thus obtained of distinguishing itself solely to the state of the atmosphere, which was most favourable to its development. This was markedly so at the period I speak of. During October 1890 the sun was warm and bright, and it was pleasant out of doors, but the houses were chilly, and as yet few people had started fires. One had to dress more warmly for the house than for out of doors, and it seemed to me that as soon as that fact was taken notice of,



the epidemic quickly ceased. Treatment I found, to be successful, had to be directed to good nursing and attending to the usual rules of health. A sharp purge, expectorants, with poultices and a warm, dry atmosphere, speedily ended the cases, and just in proportion to the amount of care taken at the time, so was the after effect. It seemed unnecessary to try and control the fever or to look for any special drug, and very little trouble was given by patients as soon as they were placed in a normal condition of function. What might be termed a third wave passed over the Settlement in February 1891. This time it was confined to a row of houses occupied by some Chinese, principally guls. Some of the cases were rather severe, and attacked the lungs, always a weak spot with Chinese, but with care all recovered perfectly.

### SPRUE

I wish to add to my former communication the following case I treated at home, and the report of which I read, together with my former cases, in a paper before the Medico-Chirurgical Society of Edinburgh, 2nd April 1890. The paper appeared in the *Edinburgh Medical Journal* for September 1890 —

I have treated, however, since my return home one patient whom I met in a hotel in London, whose case is a specially interesting one, for, among other things, it had been diagnosed as a true example of the disease in question by good men both in India and at home. It is also most interesting from the intelligent account given by the patient of its origin, and as being just the case where, had an irritable, defenceless condition of the mucous membrane from mouth to anus existed for 19 years, one would not have been surprised had it ended in atrophy, and the patient been incurable.

#### Patient states —

I first contracted what we call in India hill diarrhoea in 1871, marching from Nim Tal to Almora. It was a three days' march, and, although in the Himalaya range, was very hot. I drank copiously from the small springs on the sides of the hill. On reaching Almora diarrhoea set in violently, and continued for a long time after I went to the plains. It was partially stopped by a medicine, but not, however, cured, and I was never, I may say, certain of myself, and, as far as I can recollect, never had a firm motion. In 1878 I had a very bad attack in Paris, and was again helped by treatment. My last bad attack was at Darjeeling, in 1883, and up to date I have never been free from it. In 1883 I weighed 17 stone 12 pounds, and went gradually down to under 12 stone. I am now 12 stone 3 pounds, with clothes and a light overcoat, which is scarcely enough for a man of 6 feet 4 inches.

This patient presented the appearance of chronic ill health: pale, anæmic, pained, anxious face, and being of commanding height, his thinness was most pronounced. He complained of constant pain with diarrhoea, or rather a constant uneasy feeling in the bowel and irregular motions, ever and again lighting up into a sharp attack of diarrhoea, leaving him prostrate.

In October 1889 I put him through a course of six powders of santalme, but he could only obtain the *white*, and he wrote me on the 19th of that month as follows —

I certainly think I have benefited by the course, but possibly my complaint is of such long standing that only six powders may not be sufficient.

He was advised to obtain the yellow santalme and repeat the course, and on the 16th March 1890 he writes me —

DEAR DR BEGG,

I AM afraid from my long silence you will think I have forgotten you, but that is not the case, as I wanted to give the treatment you recommended a good long test before communicating the result. I went through a second course of the santalme (the yellow), and I am delighted to be able to tell you that I have been, I may say, quite free from that complaint ever since, and have felt as I have not done for years.

Confirming that letter, he writes a week later —

I only wish I could help you to make it well known, as after years of suffering and consulting some of the best physicians in London, who gave me no permanent relief, your treatment has, as far as I can now speak, completely cured me. In addition to the relief and freedom from pain, I am quite a different man, and able to go through a hard day's work without feeling fatigue, which I was not able or fit to do before. I for one can say that the old remedies of chalk mixture, acids, milk diet, etc., are of no use for sprue, or what I call hull diarrhoea, for I have tried them all, and many other medicines that have from time to time been given me.

I afterwards saw this patient in London, and confirmed his statements as to his restored condition of perfect health.

Since my return to China I have seen Dr THIN's article on Sprue, published in the *British Medical Journal*, and have written a communication to the same journal on the subject. Dr THIN's paper was a description of a postmortem on a patient of his who died on account of, or at any rate with, the disease. A splendid series of microscopic sections of the mucous membrane from mouth to anus was prepared by Dr F J WETHERED, a pathologist of repute attached to a London hospital. By his kindness I was afforded an opportunity of examining the series, and had the benefit of Dr WETHERED's personal explanation of each slide. At the close of our investigations Dr WETHERED expressed himself as positive that the theory of mine would alone explain the appearances seen, and since my return to China has confirmed that opinion. Writing under date 21st January 1891, he states —

With regard to the pathology of the disease, I am fully of your opinion. I have examined several stools microscopically, micro organisms are of course present in large numbers. *The peculiar white coating that sometimes makes its appearance consists almost entirely of bacilli.*

At the postmortem it was found that this peculiar white coating lined the tube, especially at the part of the bowel where absorption ought to take place, and, to speak generally, that where the coating was present the underlying mucous membrane had undergone extensive change, at all other parts it was healthy. Even Dr THIN was forced to admit that the appearances went to prove that—

The thick coating of mucoid-like substance that covered the free surface of the bowel must have prevented the contact of the contents with the mucosa, such as it was. The result of such a condition must interfere directly with assimilation and nutrition, and these are the functions which are profoundly interfered with in this disease.

Nothing has been discovered in this or in any other case to account for the peculiar pathological changes described, but their wide extent suggests some morbid agent acting from the free surface.

Dr WETHERED now tells us that the peculiar white coating consists almost entirely of bacilli, and I think this statement, taken with the conclusions forced on Dr THIN, justify me in the hope of soon finding my theory of the cause of this disease established. However that may be, I am still as strong a believer as ever in the power of *yellow* santonine in curing it, given in the way I described. I consider the colour of the drug and the method of its administration most important. It may be unnecessary to state that any specimen of white santonine can be turned into yellow by exposure to strong sunlight for an hour or two. My observation of the difference in clinical value of the two drugs (if they are really distinct) was confirmed by many of the men I met at home who had used santonine for cases of worms, and had been

struck with the fact that it did not seem as powerful as the old yellow they had been accustomed to in former days

From several quarters I have had most gratifying confirmation of the efficacy of my treatment. Where I have been able to criticise failures I have found that little stress had been laid on the two points I hold to be essential—*viz*, colour of drug and method of administration

Since my return there have been, up to date, three deaths to record, for none of which can the climate of the port or its sanitary condition be blamed. The first was a long-standing case of aortic aneurism, the second patient was brought in from the country with acute croupous pneumonia affecting both lungs, and the third was a case of chronic bronchitis in a patient aged 71

I can, however, hardly congratulate the residents on any improvement in the sanitary condition of the port, except in so far as filling up of several low-lying lots is concerned. The drainage still continues in a most unsatisfactory condition, and under the present system must of necessity be so. The residents have adopted several of the minor suggestions I made to them when asked to report on their drainage system, but their efforts seem to have been principally directed to protecting the nose from being offended and in trying the impossible task of working efficiently the present system. The water supply continues to be from the same source as before, which cannot be too strongly condemned

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# DR J A LYNCH'S REPORT ON THE HEALTH OF CHINKIANG

For the Half-year ended 31st March 1891

METEOROLOGICAL TABLE, October 1890 to March 1891

MONTH	WIND						BAROMETER		THERMOMETER		RAIN	
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Highest	Lowest	Highest	Lowest	No of Days	Quantity
1890							<i>Inches</i>	<i>Inches</i>	°	°		<i>Inches</i>
October	17	2		7	5		30 62	30 04	78	47		
November	8	5		4	5	8	*	*	73	36	6	1 81
December	7	2		6	10	6	*	*	67	21	7	1 06
1891												
January	9	5		8	5	4	*	*	57	22	8	0 94
February	15	3		6	3	1	30 76	29 89	57	23	6	2 01
March	6	8	2	3	8	4	30 45	29 68	87	32	8	1 36

\* No record

The winter of 1890-91 was mild and pleasant. The health of the foreign community continued highly satisfactory up to the early days of February, when influenza, which had been smouldering among the native population for a long time past, broke out in our midst. The epidemic was of a much more virulent type than that of last year. Great prostration, calling for the free use of stimulants, was the rule rather than the exception. 13 cases in all were treated. Four occurred in children. These were characterised by acute onset, with high fever and long-continued vomiting, chest symptoms were slight, and the disease ran a rapid and favourable course. In adults the prominent symptoms were cough, headache, and neuralgic pains, the patients became excessively feeble, and convalescence was slow. In one child the disease was followed by purulent tympanitis of both ears, and in two adults by obstinate diarrhoea.

Small-pox is usually prevalent among the Chinese during the spring months. So far as I can learn, the number of cases this season has been singularly small as compared with former years, and no foreigner has been attacked.

A curious sequela of small-pox came under my notice in April 1890, but was not alluded to in my Report

A lady who had contracted the disease in Yang chou came to me, some two months after recovery, with a very singular condition of the face. Desquamation had been perfectly normal except on the middle of the forehead, the nose and a portion of each cheek. In these situations an enormous overgrowth of epidermis lay heaped up in pale brown, horny masses. No amount of washing and scrubbing was of any avail. The patient when I saw her was fretful and despondent, not venturing out of doors on account of her disfigurement. A few applications of salicylic collodion removed the unsightly growth and restored her peace of mind.

In March a case of rotheln was met with—the first I have seen in China. The patient, a lady missionary, had just come in from Kao-yu, beyond Yang-chou. The course of the illness was in no respect different from that observed in Europe.

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## DR J. F WALES'S REPORT ON THE HEALTH OF CANTON

For the Year ended 31st March 1891

DURING the past year there were three deaths among the foreign residents. The diseases ending fatally were dysentery, Bright's disease and purpura.

Numerous and severe cases of dysentery and malarial fevers occurred in the autumn and winter, and influenza was epidemic in and around Canton in January and part of February.

In a house on Honam tenanted by some of the members of the Imperial Maritime Customs Out-door Staff four persons were attacked, almost simultaneously, with acute dysentery. Here the disease was traceable to the use of water that had been obtained from a well on the premises. The well was closed, and the outbreak ceased.

Scarcity of good water, caused by the lengthened absence of rain, had much to do with the general unhealthiness which prevailed. The exposure to the air of the beds of wells, ponds, small streams, etc., that had become dried up was another factor.

Experience shows that there are certain cases of malarial fevers which quinine and other anti-periodic drugs fail to cure. These are only benefited by removal of the patients from this place to a higher or drier locality, *eg*, the Peak at Hongkong or Macao. Of this fact I had recently two well-marked examples.

Both at first suffered from quotidian ague, and in one the disease gradually assumed the remittent type. These patients obtained almost immediate relief after leaving here. One of them assured me that he felt better as soon as his steamer had crossed the Saltflats, a few miles from Canton, and that within 48 hours his temperature had fallen from 104° F to below 100° F. These persons were again attacked by the disease shortly after their return, and this notwithstanding that they had been taking quinine in sufficient doses to produce deafness. I had, therefore, to advise them to go to Macao, where they quickly became convalescent.

Almost one-third of the foreign residents suffered from influenza.

With the majority the symptoms were very mild. The initial pyrexia in two cases reached 105° F, and with a few the bronchitis and subsequent prostration were severe and persistent. Bronchitis was the only pulmonary complication I noticed in connexion with this epidemic. Nutrients and tonics—*eg*, cod-liver oil and Fellows's syrup—did much, I believe, to relieve these symptoms and to hasten convalescence, cough mixtures, I found, were of little use.

Influenza was credited by the Chinese as the cause of the high mortality which lately prevailed in the city, and which ceased with the beginning of the rainy season. It probably was only one factor, the principal cause being the filthy water that they were obliged to procure from the canals. I have not, however, been able to learn of the existence of enteric fever. That the deaths were exceedingly numerous was evidenced by the fact that coffins worth \$8 were difficult to procure at \$20.

The following meteorological abstract has been prepared by Mr Harbour Master MAY —  
ABSTRACT OF CANTON CUSTOMS METEOROLOGICAL TABLES, April 1889 to March 1891

MONTH	WIND							WEATHER			BAROMETER				THERMOMETER			
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Variable	No of Days Calm	Average Hourly Force	No of Days Fog	No of Days Rain	Rainfall	DAY		NIGHT		DAY		NIGHT	
											Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest	Highest Reading and Average Highest	Lowest Reading and Average Lowest
											Inches	Inches	Inches	Inches	°	°	°	°
1889							miles			Inches								
April	1	21			8		6.8	1	16	6.99	{ 30 230 30 084	29 860 30 003	30 200 30 044	29 830 29 968	92 00 78 60	59 00 69 10	81 00 73 80	59 00 67 60
May	3	22			6		7.6		21	17.67	{ 30 204 30 030	29 732 29 954	30 130 30 008	29 754 29 969	92 00 84 20	69 00 76 00	86 00 80 20	68 00 73 40
June		8	9	1	12		5.8		21	7.47	{ 30 070 29 936	29 722 29 879	30 050 29 923	29 670 29 874	93 00 88 80	76 00 79 20	92 00 84 90	75 00 77 80
July -		11	5		15		7.0		13	2.83	{ 30 090 29 912	29 634 29 847	30 015 29 878	29 700 29 841	97 00 93 00	74 00 81 30	97 50 87 30	71 00 78 70
August	3	17	1	2	8		7.4		15	9.23	{ 30 100 29 925	29 650 29 857	30 080 29 902	29 630 29 835	96 50 90 10	73 00 79 20	87 00 83 40	74 00 77 50
September	5	13			12		5.8		11	3.15	{ 30 182 30 081	29 890 30 004	30 180 30 029	29 900 30 002	96 40 90 20	74 50 79 40	88 50 83 60	69 00 76 20
October	15	5	1	2	8		6.2		9	5.51	{ 30 254 30 164	29 830 30 083	30 230 30 119	29 700 30 058	94 00 85 10	66 50 74 30	93 00 78 80	61 00 71 40
November	20	1		3	6		6.8		10	0.87	{ 30 546 30 196	29 982 30 091	30 530 30 118	29 978 30 069	86 50 74 20	52 00 63 80	80 00 70 30	49 00 62 70
December	16			1	14		7.4		4	0.18	{ 30 506 30 297	30 034 30 197	30 440 30 227	30 030 30 169	84 00 70 10	48 00 55 00	81 00 64 70	42 00 52 20
1890																		
January	13	1			17		7.1		10	2.33	{ 30 490 30 304	29 900 30 212	30 470 30 269	29 850 30 204	83 00 65 40	42 00 52 00	78 20 58 20	37 00 49 90
February	9	6			13		7.5	1	11	1.48	{ 30 414 30 177	29 758 30 079	30 372 30 123	29 700 30 049	83 50 70 70	47 00 56 80	81 90 63 90	43 00 54 50
March	17	2	1	2	9		6.6	1	22	4.66	{ 30 390 30 134	29 880 30 046	30 378 30 103	29 870 30 054	86 00 65 20	45 00 57 30	77 00 62 00	42 00 54 60
April	3	12			15		6.5		17	9.22	{ 30 260 30 049	29 754 29 960	30 222 30 016	29 780 29 999	88 50 79 50	56 50 70 90	88 50 75 60	45 00 67 60
May	1	19			10	1	5.8		22	12.66	{ 30 056 29 951	29 764 29 874	30 042 29 944	29 770 29 889	92 00 84 50	70 50 75 80	85 00 80 10	67 00 74 20
June		22	1		7		6.3		26	8.48	{ 29 950 29 881	29 684 29 819	29 996 29 860	29 702 29 810	92 00 86 70	74 00 78 60	87 00 83 20	73 00 76 40
July		16	3		12		5.2		21	13.17	{ 29 968 29 831	29 600 29 777	29 955 29 823	29 622 29 765	95 00 87 60	74 00 78 60	93 00 83 30	72 00 77 50
August		14	3		13	1	4.0		21	8.98	{ 30 030 29 890	29 704 29 824	30 000 29 866	29 734 29 828	95 50 88 80	73 00 79 00	96 00 83 40	69 00 76 00
September	7	6	2	1	14		3.7		8	2.86	{ 30 044 29 941	29 750 29 870	30 110 29 923	29 720 29 878	97 00 88 80	63 00 76 40	86 00 81 20	63 00 73 30
October*																		
November	9	8		3	10			2	5		{ 30 350 30 204	30 020 30 124	30 370 30 200	30 060 30 158	86 00 79 60	51 00 65 00	81 00 69 90	48 00 61 50
December	10	4	1	2	14			1	11		{ 30 510 30 258	29 950 30 146	30 400 30 231	30 060 30 166	84 00 73 20	47 00 60 20	77 50 65 50	42 00 58 20
1891																		
January	12	1	1	2	14	1			3		{ 30 477 30 326	30 062 30 208	30 380 30 274	30 069 30 224	80 00 72 00	45 00 56 40	77 00 63 40	43 00 52 40
February	5	6		3	14			2	6		{ 30 690 30 349	29 912 30 255	30 570 30 304	29 790 30 244	82 00 65 30	42 50 54 70	72 00 60 10	41 00 51 80
March	10	3	2	3	12	1			19		{ 30 460 30 216	29 900 30 132	30 370 30 186	29 820 30 122	76 50 64 60	46 00 55 80	75 00 63 00	44 00 54 50

\* The records for October were destroyed in the fire which consumed the Customs Examination Shed on the 25th October 1890. In consequence of the destruction, through the same cause, of the anemometer and rain gauge, no record of the force of wind or the actual measurement of rain could be supplied.

REMARKS —1889 During April the highest reading of the barometer was 30 230 on the 20th, and the lowest 29 850, on the 26th. The highest temperature was 92°, on the 28th, and the lowest 59°, on the 20th and 22nd. S E winds prevailed and the strongest was recorded on the 7th, averaging 11 7 miles an hour during 24 hours. Rain fell on 16 days, measuring 6 99 inches. —During May the highest reading of the barometer was 30 204, on the 8th, and the lowest 29 732, on the 30th. The highest temperature was 92°, on the 31st, and the lowest 68°, on the 24th. S E winds prevailed, and the strongest was recorded on the 3rd, averaging 12 6 miles an hour during 24 hours. Rain fell on 21 days, measuring 17 67 inches. —During June the highest reading of the barometer was 30 070, on the 26th, and the lowest 29 670, on the 16th. The highest temperature was 93°, on the 1st, and the lowest 75°, on the 11th and 18th. S W winds prevailed, and the strongest was recorded on the 22nd, averaging 9 miles an hour during 24 hours. Rain fell on 21 days, measuring 7 47 inches. —During July the highest reading of the barometer was 30 090, on the 3rd, and the lowest 29 634, on the 16th. The highest temperature was 97° 5, on the 24th and the lowest 71°, on the 26th. S E winds prevailed, and the strongest was recorded on the 18th, averaging 13 miles an hour during 24 hours. Rain fell on 13 days, measuring 2 83 inches. —During August the highest reading of the barometer was 30 100, on the 7th and 8th and the lowest 29 630, on the 15th. The highest temperature was 96° 5, on the 1st, and the lowest 73°, on the 23rd. S E winds prevailed, and the strongest was recorded on the 16th, averaging 32 miles an hour during 24 hours. Rain fell on 15 days, measuring 9 23 inches. —During September the highest reading of the barometer was 30 182, on the 11th, and the lowest 29 890, on the 7th. The highest temperature was 96° 4, on the 5th, and the lowest 69°, on the 12th. S E winds prevailed and the strongest was recorded on the 1st, averaging 10 miles an hour during 24 hours. Rain fell on 11 days, measuring 3 15 inches. —During October the highest reading of the barometer was 30 254, on the 1st and the lowest 29 700, on the 16th. The highest temperature was 94°, on the 4th and 7th, and the lowest 61° on the 31st. N E winds prevailed, and the strongest was recorded on the 21st, averaging 11 3 miles an hour during 24 hours. Rain fell on 9 days, measuring 5 51 inches. —During November the highest reading of the barometer was 30 546 on the 13th and the lowest 29 978, on the 8th. The highest temperature was 86° 5, on the 8th and the lowest 49°, on the 14th. N E winds prevailed and the strongest was recorded on the 11th, averaging 14 1 miles an hour during 24 hours. Rain fell on 10 days, measuring 0 87 inch. —During December the highest reading of the barometer was 30 506, on the 13th, and the lowest 30 030, on the 7th. The highest temperature was 84°, on the 31st and the lowest 42°, on the 5th. N E winds prevailed, and the strongest was recorded on the 12th, averaging 17 miles an hour during 24 hours. Rain fell on 4 days, measuring 0 18 inch. —1890 During January the highest reading of the barometer was 30 490, on the 4th, and the lowest 29 850, on the 25th. The highest temperature was 83°, on the 1st, and the lowest 37°, on the 5th. N E winds prevailed, and the strongest was recorded on the 3rd, averaging 15 2 miles an hour during 24 hours. Rain fell on 10 days, measuring 2 33 inches. —During February the highest reading of the barometer was 30 414, on the 11th, and the lowest 29 700, on the 16th. The highest temperature was 83° 5, on the 17th and the lowest 43°, on the 11th. N E winds prevailed, and the strongest was recorded on the 18th, averaging 13 6 miles an hour during 24 hours. Rain fell on 11 days, measuring 1 48 inches. —During March the highest reading of the barometer was 30 390, on the 5th, and the lowest 29 870, on the 9th. The highest temperature was 86°, on the 21st, and the lowest 42°, on the 1st. N E winds prevailed, and the strongest was recorded on the 23rd, averaging 13 8 miles an hour during 24 hours. Rain fell on 22 days, measuring 4 66 inches. —During April the highest reading of the barometer was 30 260, on the 4th, and the lowest 29 754, on the 24th. The highest temperature was 95°, on the 13th and the lowest 72°, on the 29th, and the lowest 45°, on the 2nd. S E winds prevailed, and the strongest was recorded on the 18th, averaging 10 6 miles an hour during 24 hours. Rain fell on 17 days, measuring 9 22 inches. —During May the highest reading of the barometer was 30 056, on the 14th, and the lowest 29 764, on the 9th. The highest temperature was 92°, on the 18th, and the lowest 67°, on the 3rd. S E winds prevailed, and the strongest was recorded on the 7th, averaging 10 5 miles an hour during 24 hours, one day (the 13th) was calm throughout. Rain fell on 22 days, measuring 12 66 inches. —During June the highest reading of the barometer was 29 996, on the 24th, and the lowest 29 684, on the 29th. The highest temperature was 92° on the 17th and the lowest 73° on the 1st and 7th. S E winds prevailed, and the strongest was recorded on the 30th, averaging 9 9 miles an hour during 24 hours. Rain fell on 26 days, measuring 8 48 inches. —During July the highest reading of the barometer was 29 968, on the 2nd and the lowest 29 600 on the 17th. The highest temperature was 95°, on the 13th and the lowest 72°, on the 25th and 26th. S E winds prevailed, and the strongest was recorded on the 26th, averaging 8 2 miles an hour during 24 hours. Rain fell on 21 days, measuring 13 17 inches. —During August the highest reading of the barometer was 30 030 on the 20th, and the lowest 29 704, on the 2nd. The highest temperature was 96°, on the 25th, and the lowest 69°, on the 9th. S E winds prevailed, and the strongest was recorded on the 13th and 17th, averaging 6 miles an hour during 24 hours. One day (the 30th) was calm throughout. Rain fell on 21 days, measuring 8 98 inches. A slight shock of earthquake, travelling in a southerly direction, was felt on the 30th at 9 50 P M. —During September the highest reading of the barometer was 30 110, on the 27th, and the lowest 29 720, on the 5th. The highest temperature was 97°, on the 30th and the lowest 63°, on the 25th. N E winds prevailed, and the strongest was recorded on the 8th, averaging 6 8 miles an hour during 24 hours. Rain fell on 8 days, measuring 2 86 inches. —During November the highest reading of the barometer was 30 370, on the 11th and 13th, and the lowest 30 020, on the 10th (readings taken from aneroid by Messrs G FALCONER & Co, Hongkong and London). The highest temperature was 86°, on the 8th and 9th, and the lowest 48° on the 13th. N E winds prevailed. Rain fell on 5 days. —During December the highest reading of the barometer was 30 510 on the 30th and the lowest 29 950, on the 27th (readings taken from standard barometer No 647, by ADIE London). The highest temperature was 84° on the 4th, and the lowest 42°, on the 31st. N E winds prevailed. Rain fell on 11 days. —1891 During January the highest reading of the barometer was 30 477, on the 15th, and the lowest 30 062, on the 30th. The highest temperature was 80° on the 12th, 23rd and 27th, and the lowest 43°, on the 15th. N E winds prevailed. Rain fell on 3 days. —During February the highest reading of the barometer was 30 690 on the 12th and the lowest 29 790, on the 4th. The highest temperature was 82° on the 24th and 27th and the lowest 41° on the 6th. S E winds prevailed. Rain fell on 6 days. —During March the highest reading of the barometer was 30 460 on the 23rd, and the lowest 29 820, on the 16th. The highest temperature was 76° 5, on the 1st, and the lowest 44°, on the 27th. N E winds prevailed. Rain fell on 19 days.



## DR C C DE BURGH DALY'S REPORT ON THE HEALTH OF NINGPO

For the Half-year ended 31st March 1891

Births two living, one stillborn Deaths none

The health of the community has been excellent, giving me, as usual, little or nothing of interest to report about foreigners, the only serious case occurring amongst them was one of acute rheumatism, which is only now, as I write this, slowly recovering after six weeks' illness

The fever which it has become fashionable to call influenza, although it has very little resemblance to ordinary influenza, was epidemic here in the autumn. A few foreigners and a large number of natives suffered from it. No fatal case occurred in my practice

The symptoms in the acute cases were chill, followed by high fever, rapidly reaching  $103^{\circ}$  or  $105^{\circ}$ , with severe pains referred to the bones. The fever lasted from two to seven days, then rapidly subsided, leaving behind, in many cases, a most persistent, troublesome cough. The treatment generally recommended was rest in bed, and aconite internally, while the fever lasted, and sedatives for the cough. I found quinine, antipyrin, etc., had rather an injurious effect

In marked contrast to the autumn of 1889, the weather here last autumn was very fine, and, consequently, very few cases of intermittent fever occurred amongst the foreigners

The diseases prevalent amongst the natives were intermittent fevers of the various types, quartan ague being the commonest, continuous fevers, divided by the natives into 7, 14, and 21 days' fever, measles and small-pox, and in the autumn cholera and dysentery

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## RAPPORT SANITAIRE DU DISTRICT DOUANIER DE LAPPA

Pour le Semestre finissant le 31 mars 1891

LES conditions spéciales du district de Lappa, comparables, si l'on veut, à celles du district de Kowloon, ôtent toute ombre d'intérêt au rapport clinique qu'on puisse faire exclusivement sur lui. Le nombre des résidents étrangers n'est que trop restreint et encore ceux-là, des employés de la Douane impériale, n'habitent que les postes douaniers de Chinsan et Malowchow. Le reste, y compris tout le personnel de l'*In-door* et une partie de celui de l'*Out-door Staff* de la Douane de Lappa, réside à Macao, établissement portugais limitrophe du district.

Les cas fournis à l'histoire nosologique du district de Lappa par les résidents étrangers ont été pendant le semestre d'octobre 1890 à mars 1891—et généralement ils le sont toujours—tout-à-fait dénués d'intérêt clinique. Pour ce qui regarde la pathologie indigène, les données que l'on peut obtenir dans un pays où on ne connaît guère la statistique et où la médecine est exercée par des charlatans, sont toujours insuffisantes, quand elles ne sont pas fausses.

Voilà pourquoi, invité à faire le rapport clinique du dernier semestre au district de Lappa, j'ai dû me rapporter aux environs de ce district, spécialement à Macao.

Le climat du district douanier de Lappa et de ses environs est, sans contredit, un des plus doux, s'il n'est pas le plus sain, de toute la côte de la Chine. Le voisinage des rizières qui couvrent le sol de l'île de Hianshan à peine se fait-il sentir sur le littoral, et il n'y a que le poste douanier de Chinsan qui de temps à autre produit quelques cas de paludisme, plus ou moins graves, surtout chez les Européens arrivés d'autres contrées marécageuses.

Le poste de Malowchow avait donné, dès son installation, assez de cas d'infection paludéenne. Les mesures qu'on a pris pour l'assainissement des habitations dans ce poste ont fait disparaître tout-à-fait ces cas, et il n'arrive aujourd'hui que rarement d'y rencontrer quelques cas pathologiques sans valeur, soit du rhumatisme ou des bronchites, surtout dans la saison favorable à ces manifestations morbides—février à avril.

À Macao, pendant le semestre qui vient de s'écouler, rien n'a altéré l'état sanitaire normal du pays si ce n'est les épidémies de variole et d'*influenza*, dont la première a sévi dès le mois de janvier et l'autre surtout en février.

Je ne saurais à la rigueur appeler la variole qui a sévi à Lappa et dans ses environs une épidémie, puisque la variole y vient chaque année, endémique et tant soit peu meurtrière. Seulement, cette fois-ci elle ne s'est pas confinée aux indigènes, elle s'est portée sur les résidents et les non-résidents étrangers.

À l'hôpital militaire de Macao on n'a eu que trois décès, un Chinois et deux soldats de la garnison indienne (Mahrattas), dont pas un seul n'avait été vacciné. À l'hôpital civil on a eu un seul décès, un enfant indien, non vacciné, lui aussi. Dans la clinique des médecins établis à Macao on a compté jusqu'à 14 cas de décès, tous des naturels de Macao.

D'une façon générale, on peut dire que les individus qui avaient été vaccinés et surtout revaccinés n'ont eu que la variole discrète, voire même la varioloïde, la variole confluente et surtout la forme hémorragique n'ont fait des ravages que sur des individus non vaccinés. Il

faut, pourtant, faire exception d'un cas de variole hémorrhagique survenu dans une femme en couches, laquelle, dit-on, avait été vaccinée dans son enfance. Je crois que ce fut le seul cas et encore on ne doit peut-être trop s'y appesantir, car il y avait longtemps que la vaccination avait été faite.

Mais ce qui est un argument de première ligne en faveur des avantages de la vaccination c'est que, ayant vacciné moi-même dans le mois de janvier 693 indigènes, qui devaient s'embarquer comme passagers sur le bateau à vapeur *Independent*, pour le Mexique, je les ai vus se promener partout dans la ville et ses environs, au milieu de l'épidémie, dont pas un seul ne fut frappé. Et pourtant ils ne se sont embarqués que pendant les premiers jours de mars.

Le premier cas d'*influenza* que j'ai observé dans le dernier semestre, ce fut à la fin de janvier, à bord d'une chaloupe à vapeur de la Douane impériale. Il y avait 10 matelots indigènes frappés ensemble, plus le second, un Européen, qui était allé se soigner à terre. Puis, dans quelques jours l'*influenza* s'était repandue partout, chez les Européens comme chez les indigènes.

L'épidémie s'est montée toujours la même, sauf l'intensité des symptômes. Invasion sans prodromes, céphalalgie, rachialgie, prostration générale, fièvre, atteignant parfois 40° et plus rarement 41° centigrades (104° à 106° Fahrenheit), anorexie, soif, langue rouge sur les bords et à la pointe, couverte d'un enduit jaunâtre sur le dos, nausées, allant par exception jusqu'au vomissement, toux, d'abord faible, puis un peu plus forte, phénomènes stéthoscopiques nuls ou à peu près. Le traitement dans les cas les plus légers se bornait aux diaphorétiques (jabouandi, poudre de Dove), quelques fois on employait avec succès la quinine, mais dans la majorité des cas il fallait recourir à l'antipyrine (3 à 4 grammes, soit 45 à 60 grains, dans la journée).

Les symptômes, qui subsistaient au delà du deuxième jour, étaient généralement la toux, accompagnée ensuite des râles humides de la bronchite, surtout dans les individus prédisposés, l'expectoration facile ou s'établissant aisément par le moyen des expectorants et balsamiques (keimès, Tolu, etc.), l'anorexie toujours difficile à debouter avant le quatrième ou le cinquième jour, demandant maintes fois l'emploi d'un purgatif léger (citrate de magnésie, sulfate de soude). La fièvre, la céphalalgie, la prostration générale, qui cédaient sous l'action de l'antipyrine, ne revenaient que si le malade abusait des forces dont il croyait disposer et qui n'étaient que fictives. En se mettant au grand air, sans la moindre précaution, il attrapait souvent une pneumonie, quelquefois une pleurésie, une bronchite capillaire, etc. Ces cas exceptés, je n'ai jamais observé la fièvre de retour, dont quelques habiles médecins font pourtant un symptôme fréquent de l'*influenza*.

C'est vraiment à regretter que ni même à Macao, où il y a un hôpital chinois, on ne puisse obtenir des données positives sur les ravages produits par les épidémies de variole et d'*influenza* pendant le trimestre qui vient de finir. *Mutatis mutandis*, on peut dire de la statistique chinoise de Macao ce que le docteur JAMIESON a dit de celle de Shanghai —

Formal statistics collected from Tipao are absolutely valueless. They are falsified either designedly or through idle carelessness.\*

Il y a, pourtant, un moyen d'estimer la mortalité produite par les susdites épidémies parmi la population chinoise de Macao, c'est de comparer la nécrologie absolue du dernier trimestre avec celle du premier trimestre des années précédentes. Pour y arriver, on peut consulter la statistique du cimetière chinois de Macao. Certes, le moyen n'est pas absolument sûr, car d'abord la population indigène de Macao n'est pas toujours la même, elle n'est que trop

flottante dans sa grande majorité, puis, les enterrements des résidents chinois ne se font pas tous à Macao, il y a parfois des cadavres qui sont transportés en Chine pour y être inhumés, surtout à Lappa et à Canton. Mais, d'un autre côté, on peut admettre que pendant les épidémies la proportion des cadavres transportés au dehors de Macao reste la même qu'auparavant, et, après tout, il faut avouer que la différence est tellement frappante qu'on ne peut l'attribuer qu'aux ravages épidémiques.

Au fait, la moyenne des cinq derniers ans, 1886-90, donne pour la population chinoise de Macao, dans le premier trimestre, janvier à mars, une mortalité de 412, ce que pendant les trois mois qui viennent de s'écouler a monté au chiffre assez sensible de 809, soit à peu près le double.

Quant à l'influence de la saison je la trouve bien difficile à saisir. Cette année l'hiver a été très-doux, on n'a pas eu les pluies qui en règle générale caractérisent les mois de février et mars dans ces pays, et le froid même n'est jamais tombé au-dessous de 9° centigrades. Les années précédentes, l'hiver a été autrement rigoureux, pourtant, ni la variole ni l'influenza n'ont fait de ravages que l'on puisse comparer à ceux de l'année courante.

TABLEAU I

*Enterrements au Cimetière chinois de Macao pendant le Trimestre janvier-mars*

CADAVRES	1886	1887	1888	1889	1890	MOYENNE	1891
Hommes	122	148	149	150	149	143	293
Femmes	101	102	149	101	104	112	254
Enfants	152	178	250	123	82	157	262
TOTAL	375	428	548	374	335	412	809

TABLEAU II

*Enterrements de non-Chinois au Cimetière catholique de Macao pendant le dernier Semestre*

MALADIES QUI ONT CAUSÉ LA MORT	Octobre	Novembre	Décembre	Janvier	Février	Mars	TOTAL
Lésions des appareils—							
Respiratoire		5	1	4	6	7	23
Digestif	1					2	3
Circulatoire	1			1		1	3
Nerveux	1			1			2
Génito urinaire		1					1
Varole			1	3	4	7	15
Sémité	3			1	7		11
Autres maladies	3				3	1	7
TOTAL	9	6	2	10	20	18	65

Les Européens décédés ont été au nombre de quatre, tous Portugais et militaires, les causes de décès ont été hémie inguinale étranglée, suicide, paludisme et tuberculose.

Au district de Lappa on n'a pas eu de décès d'Européen.

RÉSUMÉ des PRINCIPALES OBSERVATIONS MÉTÉOROLOGIQUES faites à l'OBSERVATOIRE  
de MACAO pendant le SEMESTRE finissant le 31 mars 1891 \*

OBSERVATIONS		Octobre	Novembre	Décembre	Janvier	Février	Mars
Pression	maxima	30 217	30 260	30 337	30 346	30 513	30 346
	minima	29 696	29 990	29 880	29 957	29 825	29 751
	oscillation quotidienne	0 059	0 062	0 064	0 060	0 065	0 063
Température	maxima	97 00	83 00	82 00	82 00	81 00	82 00
	minima	64 00	53 00	53 00	49 00	45 00	52 00
	oscillation moyenne	20 00	15 86	13 51	15 57	12 96	9 45
Humidité	maxima	95 00	95 00	100 00	94 00	100 00	100 00
	minima	40 50	21 00	39 50	42 00	36 00	53 50
Pluie	quantité en pouces	0 08	0 17	4 04	0 11		2 65
	nombre de jours	1	1	3	1		7
État du ciel	beau ou presque, jours	18	17	14	17	1	
	moyenne nébulosité, jours	12	11	13	13	10	10
	couvert ou presque, jours	1	2	4	1	17	21
Vent	vitesse moyenne diurne	68 <sup>k</sup> 1	55 <sup>k</sup> 5	64 <sup>k</sup> 8	58 <sup>k</sup> 9	51 <sup>k</sup> 1	59 <sup>k</sup> 9
	direction	N 26° 5' E	N 31° E	N 49° 5' E	N 36° E	N 1° O	N 22° E

\* Extrait d'un tableau que je dois à la bienveillance de M J C ALCOTRA, Capitaine du port de Macao

Baromètre à 32° Fahrenheit au niveau de la mer Échelle en pouces anglaises Thermomètre à l'air, en degrés Fahrenheit

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## DR B STEWART RINGER'S REPORT ON THE HEALTH OF AMOY

For the Year ended 31st March 1891

DURING the 12 months ended 31st March 1891 the health of the foreign community at this port has been fairly good, and the locality has been free from any serious epidemic

During the spring of the year 1890 several cases of influenza, characterised by muscular pains, sore throat, fever and protracted convalescence, were attended, there were also others, however, of a milder type generally, which under different circumstances would have been classed as cases of ordinary catarrh

The summer was neither excessively hot nor long, and although some severe cases of malarial fever and diarrhoea occurred, the season was, on the whole, healthy

Thirteen births and two deaths have to be recorded. Among the former, one labour was terminated by the aid of the short forceps, in consequence of uterine inertia, the rest were normal. Of the two deaths, the first occurred in January 1890, and resulted from exhaustion following chronic diarrhoea, which had continued for three years, in one who had resided for many years amongst the Chinese up country, the second took place in May from drowning, the result of a boating accident

A somewhat severe outbreak of purulent ophthalmia was attended during the months of July and August at the Roman Catholic Orphanage, where 60 Chinese children are resident; and notwithstanding the various precautions taken, more than one-third of the children were attacked

The instillation of a nitrate of silver solution, frequent cleansings with zinc lotion, and guarding the eyes from the light, in some instances, cut short the attack, but in others the disease proved most intractable, and in two cases staphyloma followed the severe ulceration of the cornea which previously existed

In the early part of the present year (1891) many cases of measles were reported among the Chinese in the neighbourhood of the foreign Settlement, and as the natives are most unguarded and careless in connexion with the spread of contagion, it was feared that the disease might extend widely among the foreign community, but every effort was made to prevent this, and, happily, only three or four cases occurred, all of which terminated favourably

It is noteworthy that the rainy season was retarded this year, with the unpleasant result that the water in several of the wells, which is usually clear and fresh, became so brackish that it was quite undrinkable and most disagreeable to wash in. I was informed that many of the Chinese were much concerned about this matter, and sought the aid of their deities, considering it likely that the long drought would be followed by some violent outbreak of epidemic disease—and probably not without some reason. However, a timely downpour of rain rapidly restored confidence and soon removed the unpleasant condition

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## DR A IRWIN'S REPORT ON THE HEALTH OF TIENTSIN

For the Half-year ended 31st March 1891

WITH the exception of an epidemic of influenza and several cases of the so-called typho-malarial fever, the health of the foreign community, notwithstanding the inundated state of the surrounding country, has been fairly good

One death took place from typho-malarial fever, the origin of the disease in this case being clearly traceable to exposure to the emanations from freshly turned-up soil

Two deaths occurred among the shipping in port—one from meningitis, the other from phthisis

Very few residents escaped the influenza, but, as a general rule, the attack was very mild, lasting about three days. In two cases pneumonia set in, but in each only the base of the right lung was attacked, and in neither case was there any cause for anxiety

The foreign population of the Settlement numbers about 250. Nearly all are strong and healthy, so that, as far as they are concerned, the materials for writing a medical report are almost *nil*

At the native hospitals no cases of any special interest presented themselves during the period under review

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## DR GEORGE R UNDERWOOD'S REPORT ON THE HEALTH OF KIUKIANG

For the Half-year ended 31st March 1891

DURING the past six months the health of the foreign residents has been good on the whole, though the number of minor ailments has certainly been above the average. The autumn was dry and pleasant, with much sunshine, and the winter has not been colder or more rainy than usual.

As in former years, malaria, in the form of quotidian or tertian ague, has been the complaint most frequently met with. In every case of the 24 treated a purge, followed by a few full doses of quinine, or, better, quinine combined with salicylate of soda, sufficed to check the fever. Foreign children born in this place have an especial liability to malarial attacks, while adult residents who have not lived in aguish districts before settling here may escape it altogether.

Influenza found its way to this port, fortunately not in epidemic form so far as foreigners were concerned, and three patients came under my care.

The first—A. B., 48, male—awoke one morning not feeling well, and two hours afterwards, on my seeing him, he complained of giddiness, sickness with vomiting, and difficulty in breathing. His temperature was  $102^{\circ}$ , and the pulse 116. The urgent symptoms were relieved by rest, poultices and medicinal treatment. The temperature became normal after five days, and 12 days from the beginning of the attack the giddiness, which had been to him most alarming, had all but gone. This patient has for years been the subject of irritable heart, and every few months required to have digitalis or strophanthus. While other symptoms disappeared, the pulse, up to three weeks from the date of seizure, varied from 90 to 100, the average in health being 80, and his strength was regained very slowly.

In a second case—C. D., 40, male—the attack began with slight headache, chilliness, rise of temperature to  $100^{\circ} 8$ , and a little cough. The next day the cough continued, otherwise the patient felt better, and had no headache or fever. For a week after this he had little appetite, and felt languid and disinclined to work. He then began to complain of palpitation and discomfort in the region of the heart, which hindered him from sleeping well at night. On examination the heart's action was found to be irregular, one contraction in every seven or eight following too quickly on the preceding one, and the pulse was weak, with a rate of 45 to 50. Complete rest, a dietary from which tea and coffee, found by the patient to increase the palpitation, were excluded, with tincture of strophanthus in 5-minim doses, three times a day, caused the irregular action to cease, and the pulse returned to its normal (70-72) in a fortnight. Three months passed before the patient felt thoroughly well.

In the third case bronchial catarrh was the prominent feature. Convalescence, though prolonged, was complete.

Two residents suffered from simple continued fever, a form of illness not often seen here in winter.



In the first—E F, female, 32—there was at the onset severe headache, slightly furred tongue, loss of appetite, constipation, and inability to sleep well at night. The evening temperature for 18 days fluctuated between  $100^{\circ}$  and  $101^{\circ}8$ , and that of the morning from  $1^{\circ}$  to  $1^{\circ}5$  lower. After this the thermometer never registered over  $100^{\circ}$ , and by the end of the fourth week the temperature was normal. Antipyrin relieved the headache, but neither that drug, quinine, nor quinine and salicylate of soda had any effect on the fever. There was at no time any abdominal tenderness, and pulmonary symptoms were entirely absent. It was from the beginning uncomplicated, simple continued fever. Convalescence, once it began, was satisfactory.

On 5th February I was asked to see G H, 26, male, who had been suffering from fever from the 1st of the month. The patient, who was 5 feet 9 inches in height, of average build, and in fair muscular condition, told me that he had been living in a malarious district in the interior, and thought that he had ague. When I examined him, at 10 A.M., his pulse was 78, respirations 85, and temperature  $101^{\circ}$ , and his skin was soft and moist. He had no headache, the tongue was clean, he had desire for food, the abdomen was full, with slight tenderness over the right iliac region (this was not found again), his bowels were constipated, and he could sleep quite well at night. He had had what he considered an aguish attack at 4 P.M. the day previous, when the temperature was  $103^{\circ}8$ . The bowels were cleared, quinine with salicylate of soda in full doses given three times a day, with a diet of milk and soups, with the result that after 12th February the temperature only once rose to  $101^{\circ}5$ , and the intermittent crises ceased. There remained for three weeks more an increase of temperature, varying from  $100^{\circ}5$  to  $102^{\circ}$ , and this, uninfluenced by medicinal treatment, gradually passed off. Cascara was not a success in the treatment of the constipation, which held throughout the illness, and, when required, castor oil was preferred. The irregularly slow respiratory rate was a noteworthy feature in the case, and with convalescence the frequency increased. The patient's ordinary rate I found to be 12 per minute. All through the illness there was neither headache nor thirst, and the tongue remained free from coating. Appetite and digestion continued good, with the exception of two days, when constipation had been unrelieved, though, of course, the patient lost weight. In both this case and the preceding one a change of air would have been most beneficial had the season permitted, and the feverishness would have been got rid of much sooner. The data of the pulse, respirations and temperature are under-noted—

DATE	Pulse	Respira tions	Tem perature	DATE	Pulse	Respira tions	Tem perature	DATE	Pulse	Respira tions	Tem perature
Feb 5 {	78	85	101 0	Feb 15 {	70	10	98 5	Feb 25 {	70	10	99 0
" 6 {	78	85	101 0	" 16 {	72	10	99 6	" 26 {	74	10	99 5
" 7 {	94	85	102 8	" 17 {	69	12	98 4	" 27 {	68	10	99 0
" 8 {	78	45	101 8	" 18 {	72	9	99 9	" 28 {	70	9	98 4
" 9 {	90	55	102 8	" 19 {	72	8	101 5	" 1 {	68	11	98 4
" 10 {	69	10	100 3	" 20 {	86	7	100 0	" 2 {	78	11	99 3
" 11 {	78	10	102 0	" 21 {	78	9	100 0	" 3 {	72	11	99 0
" 12 {	72	12	101 4	" 22 {	72	10	99 2	" 4 {	74	10	99 4
" 13 {	84	12	102 8	" 23 {	68	11	99 2	" 5 {	78	10	98 8
" 14 {	74	11	100 6	" 24 {	70	10	99 0	" 6 {	78	12	98 6
" 15 {	80	12	101 8	" 25 {	68	11	99 4	" 7 {	78	12	99 2
" 16 {	70	8	100 0	" 26 {	70	11	99 4	" 8 {	78	12	99 2
" 17 {	76	12	101 8	" 27 {	72	10	99 0	" 9 {	74	12	99 0
" 18 {	64	6	98 9	" 28 {	72	9	99 2	" 10 {	74	12	99 0
" 19 {	78	6	99 6	" 29 {	72	10	99 8	" 11 {	76	12	99 0
" 20 {	72	12	99 3	" 30 {	78	9	99 2	" 12 {	76	12	98 4
" 21 {	78	12	100 4	" 1 {	88	12	100 4	" 13 {			
" 22 {	72	12	98 8	" 2 {				" 14 {			
" 23 {	78	12	100 4	" 3 {				" 15 {			
" 24 {	78	12	100 4	" 4 {				" 16 {			
" 25 {	78	12	100 4	" 5 {				" 17 {			
" 26 {	78	12	100 4	" 6 {				" 18 {			
" 27 {	78	12	100 4	" 7 {				" 19 {			
" 28 {	78	12	100 4	" 8 {				" 20 {			
" 29 {	78	12	100 4	" 9 {				" 21 {			
" 30 {	78	12	100 4	" 10 {				" 22 {			
" 1 {	78	12	100 4	" 11 {				" 23 {			
" 2 {	78	12	100 4	" 12 {				" 24 {			
" 3 {	78	12	100 4	" 13 {				" 25 {			
" 4 {	78	12	100 4	" 14 {				" 26 {			
" 5 {	78	12	100 4	" 15 {				" 27 {			
" 6 {	78	12	100 4	" 16 {				" 28 {			
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The following notes of a case of hepatic abscess present some points of interest —

E T, male, 48, consulted me on 28th November regarding pain and uneasiness in the right hypochondriac region. The patient, a man of sedentary habits, is about 5 feet 8 inches, of fair muscularity, though its quality was somewhat flabby. The face was pale and anæmic (before this illness began his appearance denoted anæmia), and without any yellowish tint, nor was the conjunctiva in the least degree stained. The pulse was 86 and the temperature  $101^{\circ}$  at 9 P.M., when examined. He stated that about the middle of September he had severe neuralgia of the scalp, and, to relieve it, took several large doses of salicylate of soda. This proceeding brought on diarrhoea, and with it the pain from which he still suffered and from which he had not been free since. With the pain there had been fever, more or less and constant. The bowels had been constipated, the dejecta not specially light coloured, and flatulence had caused much annoyance. The abdomen was found to be much distended with flatus, an ill-defined swelling, with tenderness on palpation, could be made out over the ascending colon, especially at the upper part, but whether the hepatic area was increased could not be determined. Means were taken to get rid of the gas in the bowels, and then the lower margin of the right lobe of the liver could be felt  $\frac{3}{4}$  inch below the ribs, at a point 2 inches internal to the nipple line, and over this area there was tenderness. At the nipple line, and to the right of it, the lower margin of the liver could not be felt below the ribs, though pressure showed tenderness. There was no enlargement upwards, and auscultation revealed nothing. The stools were natural in colour. The patient could lie on either side in bed, but felt most comfortable when on his back. The pain had hindered his getting good sleep for weeks. The provisional diagnosis was "abscess." Salines were at first given, with a diet largely of milk, but digestion became so impaired that all medicines were stopped except to relieve the constipation, and the patient's strength supported as much as possible. Mustard poultices and hot water were useful in relieving the pain.

During the first two weeks after coming under my care the lower border of the left side of the right lobe descended slowly till it was  $1\frac{1}{2}$  inch below the costal margin. The fever continued irregular—one evening the temperature  $99^{\circ}$ , the next perhaps  $102^{\circ}$ , always above the normal, and the pulse fluctuated with the temperature.

On 18th December an aspirator needle was passed deeply into the liver, at a point just below the ribs and  $2\frac{1}{2}$  inches internal to the line of the nipple, but no pus was found. The pain after this puncture became more localised in the nipple line at the costal margin, and the lower border began to be felt there. The area below the ribs increased till it extended 2 inches downwards, and the lower border could be traced distinctly to the left lobe. The diagnosis was now becoming unmistakeable. On 27th December (Dr GILLISON giving chloroform and rendering other valuable assistance) a needle was passed into the liver just below the costal margin in the nipple line, and pus was found. An incision was then made from above downwards,  $3\frac{1}{2}$  inches long, the needle remaining in place as a guide to the abscess cavity. The peritoneum was exposed, and the hepatic surface found to be adherent at the point of incision into the liver. The needle was withdrawn, a director pushed along its track into the cavity, and then a pair of dressing forceps used to dilate the opening. Pus to the extent of 8 ounces was evacuated, the abdominal peritoneum all this time being kept close upon the hepatic surface. The opening was further dilated by the finger, and the margin all round stitched to the abdominal wall. The cavity was washed out, a drainage tube put in, and a dressing of absorbent cotton wool applied, the surface of the wound being dusted with iodoform. The further progress of the case is under-noted —

28th December, 9 A.M.—Temperature  $98^{\circ}6$ . Patient had a good night. Eructations troublesome. Had iced bouillon with pepsine. After changing the dressing, tonic contractions of abdominal muscles, of reflex origin, caused severe pain in the liver. Gave  $\frac{1}{4}$  grain of hydrochlorate of morphia subcutaneously.

9 P.M.—Temperature  $98^{\circ}6$ , pulse 108. Morphia repeated.

29th December, 9 A M—Temperature  $98^{\circ} 6$ , pulse 84 Night not good, from discomfort caused by cream taken before bedtime Vomited this morning, and felt relieved at once Occasional spasmodic contractions of abdominal wall

9 P M—Temperature  $98^{\circ} 6$ , pulse 84

30th December, 9 A M—Temperature  $98^{\circ} 4$ , pulse 76 Had a good night Contractions after the dressing is changed 25 grains of powdered rhubarb caused a free movement.

9 P M—Temperature  $98^{\circ} 6$ , pulse 74

31st December, A M—Temperature  $98^{\circ} 7$ , pulse 76 Night disturbed Pain lasted two hours after changing the dressing last night Carbolic acid (1 in 60), to wash out the cavity, instead of bichloride

P M—Temperature  $99^{\circ} 2$ , pulse 76 Begins to look better Still occasional eructations

1st January, A M—Temperature  $99^{\circ} 4$ , pulse 86 Changed drainage tube under chloroform, and put in two—the calibre not being sufficient Matter sero sanguinolent, with, to day, slight odour

P M—Temperature  $99^{\circ}$ , pulse 84 Was sick after chloroform Discharge free

2nd January, A M—Temperature  $99^{\circ}$ , pulse 80 Reverted to bichloride lotion Discharge free, no odour Appetite poor

P M—Temperature  $99^{\circ}$ , pulse 78

3rd January, A M—Temperature  $98^{\circ} 7$ , pulse 80 Passed a fair night, but had considerable pain after washing out cavity, which is done each dressing The abdomen is now flat

4th January, A M—Temperature  $98^{\circ} 6$ , pulse 82 Again required powdered rhubarb, and had satisfactory motion

P M—Temperature  $98^{\circ} 7$ , pulse 84

5th January, A M—Temperature  $98^{\circ} 7$ , pulse 80 Good night Changed tubes

P M—Temperature  $98^{\circ} 6$ , pulse 82 Ordered bismuth, powdered rhubarb and bicarbonate of soda

6th January, A M—Temperature  $98^{\circ} 6$ , pulse 80 Night disturbed Abdomen distended with gas, relieved by an enema

P M—Temperature  $98^{\circ} 6$ , pulse 75

7th January, A M—Temperature  $98^{\circ} 6$ , pulse 74 Night not good from indigestion

P M—Temperature  $99^{\circ}$ , pulse 88 Tincture of cascara given to-night

8th January, A M—Temperature  $98^{\circ} 8$ , pulse 80 Poor night Wound discharging freely, tube slipped out, the dressing having shifted

P M—Temperature  $98^{\circ} 9$ , pulse 74 Again cascara

9th January, A M—Temperature  $98^{\circ} 8$ , pulse 80 Cascara has had no effect, a large dose of powdered rhubarb to be given to night

P M—Temperature  $98^{\circ} 6$ , pulse 90

10th January, A M—Temperature  $98^{\circ} 8$ , pulse 76 Copious movement after powdered rhubarb Patient fatigued

P M—Temperature  $98^{\circ} 8$ , pulse 94

11th January, A M—Temperature  $98^{\circ} 6$ , pulse 74 One movement

P M—Temperature  $99^{\circ} 4$ , pulse 84

12th January, A M—Temperature  $98^{\circ} 8$ , pulse 81 Discharge very free Tube changed Spasmodic pains continued after changing dressing last night Cascara

P M—Temperature  $99^{\circ} 2$ , pulse 85

- 13th January, A M—Temperature  $98^{\circ} 6$ , pulse 74 Fairly good night  
P M—Temperature  $99^{\circ}$ , pulse 79 Several motions after cascara
- 14th January, A M—Temperature  $99^{\circ}$ , pulse 80 Colic after cascara hindered sound sleep  
P M—Temperature  $99^{\circ} 2$ , pulse 82
- 15th January, A M—Temperature  $98^{\circ} 6$ , pulse 76 Passed a good night Discharge free Tube, which is now short, pushed out by the spasmodic contractions of abdominal wall  
P M—Temperature  $99^{\circ} 4$ , pulse 87 Patient's last meal is at 8 P M., so that at 9 P M the pulse is higher, digestion being in progress
- 16th January, A M—Temperature  $99^{\circ} 2$ , pulse 82 Owing to drainage being inefficient a longer tube had to be put in under chloroform  
P M—Temperature  $99^{\circ} 4$ , pulse 88
- 17th January, A M—Temperature  $99^{\circ}$ , pulse 77 Night disturbed Matter escaping freely. Cascara, early in the morning, produced one movement  
P M—Temperature  $99^{\circ} 9$ , pulse 88
- 18th January, A M—Temperature  $99^{\circ} 2$ , pulse 84 Severe spasmodic contractions during the night felt around the tube Sleep fair Matter not coming freely, the tube was replaced, and, as usual, the cavity washed out with bichloride of mercury lotion  
P M—Temperature  $99^{\circ} 8$ , pulse 93 Appetite for some days past good Two movements
- 19th January, A M—Temperature  $99^{\circ} 4$ , pulse 83 Much discharge on dressing  
P M—Temperature  $99^{\circ} 4$ , pulse 93 Changing dressing much less painful for several days past
- 20th January, A M—Temperature  $99^{\circ}$ , pulse 88 Night good An air mattress, just procured, adds much to patient's comfort The skin over the sacrum was beginning to get irritated Strong adhesive plaster (two folds) answers exceedingly well in such a case when the skin is not broken  
P M—Temperature  $99^{\circ} 4$ , pulse 88
- 21st January, A M—Temperature  $98^{\circ} 4$ , pulse 74 Night good Cascara again  
P M—Temperature  $99^{\circ} 8$ , pulse 96 No movement, much gas in bowels Dressing easily borne
- 22nd January, A M—Temperature  $98^{\circ} 9$ , pulse 78 A good night No movement A large dose of cascara this morning (Patient cannot swallow pills or take castor oil, and takes salts in the dry form) Matter is still dark and sero-sanguineous  
P M—Temperature  $99^{\circ} 4$ , pulse 84 One difficult movement
- 23rd January, A M—Temperature  $98^{\circ} 6$ , pulse 80 Several small movements during the night No sleep, and patient fatigued accordingly  
P M—Temperature  $99^{\circ} 4$ , pulse 96 A free motion during the day Appetite very good
- 24th January, A M—Temperature  $98^{\circ} 7$ , pulse 84 Night fair Two movements before daybreak  
P M—Temperature  $100^{\circ}$ , pulse 90 Patient has a light coryza
- 25th January, A M—Temperature  $98^{\circ} 8$ , pulse 75 Passed a good night One movement  
P M—Temperature  $100^{\circ}$ , pulse 90 A little bronchial catarrh
- 26th January, A M—Temperature  $98^{\circ} 6$ , pulse 72 A good night Matter now more distinctly purulent Cascara this morning  
P M—Temperature  $100^{\circ} 3$ , pulse 96 Pain this afternoon in right hypochondrium, the bowels distended with flatus
- 27th January, A M—Temperature  $98^{\circ} 8$ , pulse 78 Cascara again to day The cold runs its course, and there is still cough  
P M—Temperature  $100^{\circ} 4$ , pulse 88 Bowels not yet moved Flatulence troublesome

28th January, A M—Temperature  $99^{\circ} 5$ , pulse 80 A bad night Severe pain in liver, to the right of the wound, which is increased by the flatulent condition Three movements during the night, but no sleep

P M—Temperature  $100^{\circ} 3$ , pulse 93 The day has been easier, though there is still pain

29th January, A M—Temperature  $99^{\circ} 5$ , pulse 80 A good night's rest 4 drachms of sulphate of magnesia early in the morning, followed by 2 drachms more at 2 P M

P M—Temperature  $100^{\circ} 6$ , pulse 100 No movement, an enema of glycerine to be given

30th January, A M—Temperature  $98^{\circ} 4$ , pulse 74 Four large movements immediately after the glycerine, much gas escaped Slept little Ascending colon still distended

P M—Temperature  $100^{\circ} 4$ , pulse 100

31st January, A M—Temperature  $98^{\circ} 4$ , pulse 78 Bronchial catarrh troublesome all night Gave a sedative mixture Wound contracting quickly now

P M—Temperature  $99^{\circ} 5$ , pulse 78 A glycerine enema brought away mucus only The wound is slightly erythematous at upper part

1st February, A M—Temperature  $98^{\circ} 6$ , pulse 76 Catarrh better Slept five hours Erythema round margin of wound less Bowels distended and uncomfortable

P M—Temperature  $100^{\circ}$ , pulse 90 Day fairly good Discharge still profuse

2nd February, A M—Temperature  $99^{\circ} 8$ , pulse 80 Night fairly good Pain in neighbourhood of wound, erythematous blush still present Took sulphate of magnesia early in the morning

P M—Temperature  $99^{\circ} 6$ , pulse 94 No motion

3rd February, A M—Temperature  $98^{\circ} 6$ , pulse 77 Had a good night

P M—Temperature  $99^{\circ} 6$ , pulse 90 A second dose of sulphate of magnesia resulted in two movements and much gas Patient's appetite is good, in spite of continued feverishness

4th February, A M—Temperature  $98^{\circ} 4$ , pulse 80 A good night

P M—Temperature  $100^{\circ}$ , pulse 96

5th February, A M—Temperature  $99^{\circ}$ , pulse 80 No sleep, from pain in side and distension of bowels

P M—Temperature  $100^{\circ} 4$ , pulse 92 Took sulphate of magnesia at 4 A M, and had two liquid stools in forenoon

6th February, A M—Temperature  $99^{\circ} 4$ , pulse 84 Night not good, very tired this morning

P M—Temperature  $101^{\circ}$ , pulse 90 Pain all day over liver in mid-axillary line 25 minims of nepenthe at bedtime

7th February, A M—Temperature  $100^{\circ} 7$ , pulse 89 Pain in right hypochondrium all night, and a swelling externally at lower border of liver in mid-axillary line *Pressure over this caused the rupture of a second abscess into the cavity of the old one*, and 2 ounces of pus escaped A drainage tube was passed to the opening without difficulty, and the sac washed out

P M—Temperature  $100^{\circ} 9$ , pulse 93 Patient slept a little during the day, and matter has been escaping freely

8th February, A M—Temperature  $99^{\circ} 2$ , pulse 85 Patient had to take nepenthe at midnight to relieve spasmodic contractions of abdominal wall, which came on at three different times during the night A little ulceration in progress at the lower edge of the wound, which is still erythematous

9th February, A M—Temperature  $98^{\circ} 6$ , pulse 88 Slept little Ulceration extending slightly. No result followed administration of glycerine enema

P M—Temperature  $99^{\circ} 4$ , pulse 92 A good day No movement

10th February, A M—Temperature  $98^{\circ} 4$ , pulse 76 Passed a good night Wound discharging freely

P M—Temperature  $98^{\circ} 6$ , pulse 84 Powdered rhubarb at 6 P M

11th February, A M—Temperature  $98^{\circ} 4$ , pulse 75 Fair night Still no motion

P M—Temperature  $98^{\circ} 4$ , pulse 81 At 11 A M a glycerine enema produced a free movement

Ulceration at edge of wound less

12th February, A M—Temperature  $98^{\circ} 4$ , pulse 72 Good night Matter coming freely

P M—Temperature  $98^{\circ} 4$ , pulse 78

13th February, A M—Temperature  $98^{\circ} 6$ , pulse 68 A good night

P M—Temperature  $98^{\circ} 8$ , pulse 72

14th February, A M—Temperature  $98^{\circ} 6$ , pulse 68 Powdered rhubarb early this morning

P M—Temperature  $98^{\circ} 6$ , pulse 86 A motion after midday

15th February, A M—Temperature  $98^{\circ} 4$ , pulse 69 A good night

P M—Temperature  $98^{\circ} 4$ , pulse 84 Day comfortable

16th February, A M—Temperature  $98^{\circ} 4$ , pulse 68 A good night

P M—Temperature  $98^{\circ} 7$ , pulse 76

17th February, A M—Temperature  $98^{\circ} 4$ , pulse 69 Pressure over abscess expels about a teaspoonful of matter PARKE, DAVIS, & Co's elixir of cascara, 10 small teaspoonful this morning, produced two movements in afternoon

P M—Temperature  $98^{\circ} 4$ , pulse 81

From the last entry the temperature has not risen above  $98^{\circ} 5$ , the patient has rapidly gained strength and a small teaspoonful of cascara elixir has ensured a daily motion To day (28th March) the wound is all but closed, and only a few drops of pus stain the dressing

The diagnosis was doubtful for at least two weeks after the patient came under my care The large doses of salicylate of soda may possibly have set up typhilitis, followed by localised inflammation of the liver When first examined a certain amount of perihepatitis was present, but that seemed insufficient to account for the continued pain The face did not indicate anything hepatic, nor was the conjunctiva stained, the greater part of the organ carrying on its functions, and there being no ducts of importance compressed After the operation the spasms were very painful, they were produced by reflex contraction of the abdominal muscles compressing the liver moving the drainage tube would at once bring them on

The india-rubber drainage tubing was not so large as I should have liked, and there was no little trouble with it In another case I shall certainly try metallic tubes, though it is doubtful whether, with the spasmodic contractions to which this patient was subject, a metallic tube could have been borne After the operation the temperature fell, but did not become normal The record is interesting as showing that abscess may be present with a very slight degree of fever After the rupture of the second abscess, on 7th February, the normal was quickly regained The pain also became less after the operation, but did not cease till after 7th February The troublesome flatulence was partly due to a slight deficiency in bile and partly to the atonic state of the muscular walls of the intestines, which had existed before the patient became ill He was not in the way of taking any exercise, and had suffered from constipation for years The elixir of cascara of Messrs PARKE, DAVIS, & Co answered capitally, and seemed more reliable than the tincture previously used

There were no deaths among foreigners during the period under review

The number of Chinese attending the hospital for treatment was about the same as usual There were for the year 5,475 patients, and of these over 1,000 in-door Many of the

latter were admitted for some operation on the eyelids, and remained in for only a day or two. Influenza ran through the hospital, attacking both attendants and patients. It took the form of smart fever, with headache, etc, lasting four to seven days, and leaving the patient weak afterwards.

In October gangrenous erysipelas showed itself in an in-patient who had had amputation of the penis performed for epithelioma, and was about to leave. The disease showed itself in the left arm, and after a few days the patient succumbed.

A second case occurred four days after the first, in a patient suffering from callous ulcers of the leg, who was lying in another ward. Here the result was also bad.

All the patients were discharged at once, and the place was thoroughly cleaned, white-washed, and left empty for a month. Since then we have had no recurrence. It is difficult to prevent overcrowding at this season, so many coming whom treatment would much benefit.

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# DR E A ALDRIDGE'S REPORT ON THE HEALTH OF ICHANG

For the Half-year ended 31st March 1891

THE following abstract is from the meteorological observations taken at the Custom House, Ichang (latitude,  $30^{\circ} 14' 25''$  N, longitude,  $111^{\circ} 18' 34''$  E) —

METEOROLOGICAL TABLE, October 1890 to March 1891

MONTH	THERMOMETER				BAROMETER		RAINFALL	
	Highest	Lowest	Average Highest	Average Lowest.	Highest	Lowest.	No of Days	Quantity
1890	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	<i>Inches</i>	<i>Inches</i>		<i>Inches</i>
October	91 0	49 2	79 0	56 9	30 32	29 93	1	0 23
November	76 8	39 8	68 5	50 4	30 44	29 85	4	1 21
December	61 0	27 2	53 7	43 0	30 56	29 71	9	1 68
1891								
January	59 5	27 0	49 2	35 6	30 47	29 93	4	0 28
February	60 5	25 0	49 4	36 8	30 62	29 88	6	0 58
March	87 5	37 5	65 5	46 2	30 36	29 60	6	1 33

On analysing the above record it is found that the average temperature has been about  $50^{\circ} F$ , an extremely pleasant one for winter. This has been accompanied by an unusually dry season, the rainfall for the six months being only 5 31 inches, falling in 175 hours, making a total for the 12 months of 41 01 inches, which fell in 531 hours. The weather was mostly clear, fresh and bracing. The recession of the river left a beautiful, flat, sandy beach, about 300 yards broad and 2 miles long, allowing of good exercise without the necessity of having to meander among the thousands of tombs and paddy fields that are the immediate and uninviting surroundings of the city of Ichang. Many hard frosts were experienced, while the snow that fell melted almost at once on the ground, but was seen for days covering the tops of the mountains round. During the coldest days, even though the temperature could not be considered very low, the cold seemed most penetrating, and the amount of clothing one had to wear for comfort was astonishing.

Nasal and laryngeal catarrhs and rheumatism were frequent among foreigners, to which result the over-heating of the rooms by closed stoves—then houses not being provided with grates and fireplaces—no doubt contributed.

Fogs were absent, except on the river in the morning and evening.



Among foreigners there was one case of remittent fever, noticeable for the lengthy and intractable elevation of temperature, without any other serious symptoms. Recovery was most satisfactory.

A case of acute dysentery speedily yielded to treatment.

A middle-aged gentleman, of portly build, suffered from "lawn-tennis leg" on the first occasion of playing tennis for some time.

The characteristic sharp pain occurred, and his neighbour was at once accused of having struck him with a ball. There was great loss of power in the limb, and a painful, depressed spot was felt at the seat of rupture.

Two female children were born to foreigners.

A period of great mortality from malarial fevers among the native population lasted during the summer months, but came to an end in October.

There was an outbreak of whooping-cough in February, and several cases were attended. Pulmonary complications, from which death resulted in more than one instance, were more frequent than is generally noticed in that disease in China.

One case was followed by cancrum oris. The treatment was at once energetic, and fuming nitric acid was applied, but the child succumbed on the fourth day of the disease.

There was no return of the influenza, which, as recorded in my last Report,\* was prevalent in Ichang during April of last year.

\* *Customs Medical Reports*, xl, 5

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## DR A SHARP DEANE'S REPORT ON THE HEALTH OF PAKHOI

For the Year ended 31st March 1891

SINCE my last Report few cases of illness have to be recorded, the health, both of Chinese and foreigners, compares favourably with the previous 12 months. This may be accounted for in that there was a more even rainfall, and the temperature did not rise so high as during the preceding year, although the hot season was more protracted. Most rain fell at the proper season, not as in 1889, when the greater portion fell in August and September. In 1889, from 1st April to the end of July there was only 17.65 inches of rain, which, with a hot sun on light, sandy soil, almost amounts to a drought, during August, 30.23 inches, and from 1st September to the end of the year, 16.75 inches, were registered—making the total rainfall from 1st April to 31st December, 64.63 inches. Comparing these figures with those of 1890, the rainfall from 1st April to the 31st July was 38.05 inches, for August, 12.61 inches, and from 1st September to the 31st December, 6.66 inches—making for these nine months a total of 57.32 inches, against 64.63 inches during the same period in 1889. From this it will be seen that the rainfall for the nine months of 1889 exceeded the fall of the corresponding period of 1890 by 7.31 inches. But what is of the most vital importance to us here is not that the amount of rain in one year should be more or less than that of another, but that we should have an evenly distributed and sufficient quantity of rain between April and the end of July, as was the case in 1890, when rain fell during these four months to the extent of 38.05 inches, against 17.65 inches during the corresponding months of 1889.

### EPIDEMICS

A mild epidemic was experienced here during May. It lasted about three weeks, and affected Chinese exclusively. Out of a large number I saw 20 cases only, two of which were under my care. The symptoms and course of the disease were stated to be the same in all as in these two cases, namely —

An intense feeling of malaise, followed by rigour, pain in the back, like that experienced at the commencement of small-pox, increasing in severity, very foul tongue, suffusion of the conjunctivæ, dryness of the inside of the nose, high fever, racking frontal, temporal and occipital headache, the pain extending down the back of the neck, general muscular pains, scanty excretion of urine, constipation, great restlessness and loss of sleep. The climax of the affection was reached about the fifth or sixth day. As a rule, after the seventh day the symptoms gradually subsided, leaving the sufferers very weak, and some of them with a bad cough (bronchitis?).

The mortality in this epidemic was small, I heard of but four deaths, and these were said to have been due to lung complications.

The temperature of the two cases above referred to began to rise from the first onset of the disease, and during its course, on about the fifth day, reached  $103^{\circ}$  in one case and  $104^{\circ} 5$  in the other. Beyond a dose of compound powder of jalap with calomel, as a purge, no other medicine was given until convalescence was established, and then a tonic was prescribed. Both cases were in their usual health within a month from the commencement of the attack.

Bubonic plague, mentioned in my last Report as having broken out at Lungchow,\* disappeared in April, after a heavy fall of rain. No cases occurred at this port during the year.

The Chinese are of opinion that bubonic plague emanates from the ground, and is favoured by a long continuance of dry weather, when the earth becomes porous and numerous fissures appear on the surface, facilitating the escape of whatever causes the disease. Heavy rain, they say, prevents the occurrence of plague, or if it is already among them, a downpour of two or three days' duration will cause it to cease.

### DYSENTERY

Among foreigners, at the end of October one case of dysentery was treated, which, however, I do not consider was of local origin, as the symptoms appeared in the patient, who was not feeling well previous to landing, only a few days after arrival from a Yangtze port. A very similar case occurred here some years ago in a patient who had resided on the Yangtze for some years, and who, almost immediately on arrival, developed symptoms of dysentery.

In the following table the temperature is taken according to the rules laid down at the Hongkong Observatory —

METEOROLOGICAL TABLE, April 1890 to March 1891 (Latitude,  $21^{\circ} 29' N$ ,  
longitude,  $109^{\circ} 6' E$ )

MONTH	THERMOMETER			RAINFALL	MONTH	THERMOMETER			RAINFALL
	Highest	Lowest	Mean			Highest	Lowest	Mean	
1890	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	Inches	1890	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	Inches
April	91	59	79.0	4.57	November	82	55	67.5	0.70
May	96	67	84.0	9.48	December	81	52	68.0	2.36
June	95	75	84.5	10.81	1891				
July	93	72	88.0	13.19	January	79	51	67.0	2.08
August	93	71	89.0	12.61	February	80	42	58.0	2.69
September	92	62	74.0	3.20	March	85	52	63.5	2.62
October	90	63	75.5	0.40					

\* Customs Medical Reports, xxxviii and xxxix, 15

## DR W WYKEHAM MYERS'S REPORT ON THE HEALTH OF TAINAN

For the Two Years ended 31st March 1891

THE topographical and climatic attributes of this port having been fully described in previous Reports, it is very difficult, in view of the extremely small community settled here, to find material for other than a bare repetition of nosological details which neither from a professional nor a general point of view would seem to be of sufficient interest to warrant more than the recital which has already been amply given

During the period under review but one death has taken place, and that was from advanced pulmonary and laryngeal phthisis

The patient was sent here in a very desperate condition, necessarily more with the hope of alleviating his suffering than from any prospect of permanent recovery. As always happens, however, the further deposit of tubercle was arrested almost from the time of his arrival, and, to the surprise of everyone, not even excepting himself, life was prolonged for three years, and passed in a state of comfort that contrasted most favourably with his condition before coming to Tainan. Though specific bacilli were never absent from the sputum, still their numbers began to diminish from an early date, and towards the last were reduced very considerably

I have already and repeatedly pointed out this peculiar and beneficial local effect on tubercular disease, and can only reiterate my firm conviction that were this fact more generally known, consumptives would gladly come here, if only for the relief from distressing symptoms which is so surely afforded by residence within this area

We have not observed in South Formosa any phenomenal climatic change within the past two years, and I am therefore unable to supply the information called for under this heading

We have been singularly free from all epidemics, and, as far as I know, no cases of influenza have been met with

There have been three births during the time reported on, none of which, however, call for any further notice

Residence at Anping having of late years become much more common than it used to be, cases of pernicious malarial infection are necessarily of more frequent occurrence than formerly, but a run to Takow or elsewhere generally modifies or does away with permanent bad effects, even from this cause, and I am happy to say that the health of the community, as a whole, has been very good

There have been two cases of insolation. In one the sequent debility and general nervous symptoms were so protracted that the patient had to leave the island for three months on a trip to Japan. Though not quite up to his previous form, he has returned very much improved, and will, no doubt, soon be quite well again

## DR W A HENDERSON'S REPORT ON THE HEALTH OF CHEFOO

For the Half-year ended 31st March 1891

DURING the cold season Chefoo has but little relationship to pathology. Dry, bracing atmosphere, blue skies, a powerful sun that from 11 AM to 3 PM melts the skater's ice, just enough frost to prevent rain, are not the conditions favourable to the development of infectious disease. Yet the foreign Settlement, being situated on the fringe of a large native population, is liable to all the epidemics which visit the latter. Hence, for the last two winters foreigners have suffered from the influenza which has been prevalent among the natives. Last winter it appeared in November, and continued till January, the larger number of cases occurring in January. Few houses were left unvisited.

The character of the complaint was much the same as in Europe—generally, three days' fever, accompanied and followed by great prostration and by derangement of the respiratory and intestinal tracts. When due care was not taken, relapse occurred. In one case it was very severe, soon, pulmonary abscess became manifest. Boracic acid (10 grains three times daily) was administered, and in less than a week evacuation was complete, and the discharge, which had been copious and characteristic of sphacelus, ceased.

While influenza has attacked one or two individuals in most households, I have found that another form of epidemic poison had infected every person that I have examined, with the exception of one. This affection took the form of herpetic tonsillitis, which, according to Dr SQUIRE,\* is regarded by TROUSSEAU as a form of sporadic influenza. My first case occurred on the 24th November, and presented the following symptoms—

The maximum afternoon temperature for the first week was from 102° to 103°, second week, from 101° to 102°, third week, from 100° to 101°, fourth week, 100°—there being in all a month's fever. The fall in the morning was from 1° to 1½°. On the first day of fever there was headache and sore throat, after which no pain in either region, very irritating cough during first 10 days, further, no discomfort. From the first the pharynx generally, but the soft palate especially, was studded with large herpetic vesicles, while the fever subsided the throat persisted.

On 31st March the patient was in the same condition of throat. The soft palate was then thickly studded with vesicles, and from each vesicle proceeded a dilated vein. On the tonsils and posterior wall of the pharynx, which were formerly covered by a crop of vesicles, there were continuous patches of congestion, denuded of their epithelium.

The appearance is similar, as far as those regions are concerned, to the case of sprue described by Dr THIN†. In fact, I have at present a case of sprue, contracted in the south, the pharyngeal aspect of which is identical with some of the cases of herpes tonsillitis in Chefoo.

In the middle of February some children were attacked by the complaint.

\* *Lancet*, 16th August 1890

† *British Medical Journal*, 14th June 1890

One child had a week's fever, before she had recovered, another had it for two days. When they recovered from the fever the youngest got it, and for a fortnight had a nightly rise of temperature, which was normal during the day. All the throats were similarly affected, but in a less degree than in the father. The eldest boy then had the throat symptoms, but no fever.

A similar outbreak occurred in another household, and I then thought of the milk. Upon the udders of three cows I found vesicles. The dairyman declared that such vesicles were not uncommon during the first two months after calving, so frequent were they, he said, that the term of duration had never been watched. Four days afterwards I found that the vesicles had dried up.

I then made a visitation among the residents, and found that no throat had escaped, as mentioned. None, however, had the eruption so extensively as the first case. In this the vesicles were of the largest size of herpetic vesicle. In some they were very minute, and limited to small patches on the anterior pillars of the fauces. Between these two extremes were all degrees of development, frequently the whole of the soft palate was involved. In one family of six children two had two days' fever, the mother had one day of fever, with stiff neck. In two other families a similar proportion had fever, but as a rule there is no fever, and seldom local discomfort.

Dr DOUTHWAITE had one boy patient with a week's fever, the afternoon temperature reaching 105°, and, besides the inflamed throat, the chest was overspread with erythema, and a few petechiæ on the wrists.

A number of Chinese examined had also the throat trouble. In a few there was high fever, with great prostration, but no deaths have been heard of.

This affection is not limited to Chefoo. Five patients from Mid-China lately consulted me for other troubles, but each, unknown to himself, had the throat eruption, there being no accompanying discomfort. These facts indicate the widespread character of the epidemic. It is interesting to notice that Surgeon D. M. MOIR, in his paper on Malaria and Influenza,\* enumerates congestion of tonsils and fauces among characteristic symptoms, but makes no mention of herpes.

The duration of this affection will be interesting to observe, as it shows no signs of waning, and, according to Dr STEPHEN MACKENZIE, it is not a condition to be lightly regarded, as he has known it to lead to œdema of the glottis.

\* *Indian Medical Gazette*, December 1890

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## DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Two Years ended 31st March 1891

It will be interesting to take a general view of the meteorological conditions during the period to be reported on before considering the nature and incidence of the diseases which prevailed

The summer months of 1889, with the exception of May, were unusually tempestuous, the typhoon record for the year having been especially disastrous. The greater number of the storms which visited Shanghai were preceded by intense heat, and were accompanied or followed by a fall of temperature, which in no case lasted for any marked length of time. The most violent of these storms occurred on the 18th June and 3rd July, at both of which periods the heat was suffocating. June, July, August and the first half of September were, on the whole, dry, in spite of several torrents of rain of comparatively short duration. April and May were damp throughout. In the middle of September a wet season of six weeks set in, which lasted to the close of October, and was particularly exhausting, inasmuch as the mean temperature continued at a high figure. The nights in July, August and the earlier part of September were very hot, the thermometer commonly registering from  $75^{\circ}$  to  $82^{\circ}$  at midnight. It might almost be said that summer began in the latter part of April, when the maximum daily temperature oscillated round  $85^{\circ}$ . The first three weeks of May were cool, in the last week, however, the temperature rose again to the neighbourhood of  $80^{\circ}$ . All June was unusually hot, the maximum for the month ( $93^{\circ}$ ) being reached on the 28th. The first fortnight and the last week of July were remarkably hot. The maximum for July (7th) was  $98^{\circ}$  (this was the hottest day of the year), the night minimum (14th) was  $70^{\circ}$ , the mean for the month was  $83^{\circ}$ . August was divided into groups of two, three or four days of intense heat with intervals of moderate temperature, the highest temperature was  $95^{\circ}$  (15th), and the night minimum was  $65^{\circ}$  (29th), the mean for the month was  $81^{\circ}$ . With September autumn began. On the 1st,  $91^{\circ}$  was registered, but the mean for the month fell to  $72^{\circ}$ , while the nights became perfectly tolerable, the night minimum (29th) was  $56^{\circ}$ .

It will thus be seen that the summer of 1889 was eminently unfavourable to health, on account of its frequent tempests, its sustained high temperature (which, however, on no occasion reached  $100^{\circ}$ ), but above all on account of the intolerable heat of its nights.

The winter which succeeded this summer of exceptional heat was remarkable for its mildness. There were very few storms, those alone which are worth mentioning occurred on the 20th October and 12th December 1889, the 27th January and 23rd March 1890.

The most interesting occurrence during the winter, from a meteorological point of view, was a severe shock of earthquake, which disturbed the Settlements about 2<sup>h</sup> 15<sup>m</sup> A.M. on the 28th December. The undulation lasted for about a quarter of an hour, and was accompanied by a curious subterranean noise. Many people were seriously frightened, but a great number slept peacefully through the shaking. No damage of any kind was done. There was continuous heavy rain throughout October, completing an autumn wet season of six or seven weeks' duration. The temperature was extremely variable through October and November, the maximum

for the former month was  $83^{\circ}$  (20th), the minimum,  $39^{\circ}$  (30th). Winter may be said to have begun in November. The maximum of  $73^{\circ}$  was registered on the 8th, and the minimum of  $29^{\circ}$  on the 14th. Except during the last week, hardly any rain fell, and this relative prevalence of dry weather lasted throughout the winter. Thus there was hardly any rain in December, in January 1890 only a few showery days in the latter half of the month, three wet days and a few showery ones in February, and four wet days, besides a few showers, in March. The absence of rain does not imply that the air was dry, on the contrary, the unusually high mean temperature through the season kept a very large quantity of watery vapour in suspension. December was mild to the 11th, when, on the 12th, there was a sudden fall to  $34^{\circ}$ . The maximum temperature ( $51^{\circ}$ ) was registered on the 11th, the minimum ( $23^{\circ}$ ) on the 13th. The maxima for January (11th), February (14th) and March (18th) were, respectively,  $60^{\circ}$ ,  $68^{\circ}$  and  $63^{\circ}$ . The corresponding minima were, for January (6th),  $26^{\circ}$ , February (11th),  $30^{\circ}$ , and March (5th),  $27^{\circ}$ . These figures, however, give only an imperfect idea of the prevailing temperature of the season, which can be more accurately estimated from the facts that in January and March the mercury never fell to freezing-point between 9 A.M. and 9 P.M.; and that in February  $32^{\circ}$  and below were registered on only five days, while the mercury never touched freezing-point between 9 A.M. and midnight. Freezing-point was not reached after the 13th March.

After the exceptionally mild winter just described, the weather throughout the summer of 1890 was unusually calm. A severe storm occurred on the 24th April, on the 14th and 17th July strong winds at Shanghai indicated the neighbourhood of typhoons on the coast, and September was boisterous without any distinct storm. May, June and August were perfectly calm. A very slight shock of earthquake was registered at Zikawei during the morning of the 3rd June, but little notice, if any, was taken of it in the Settlements. The season presented nothing unusual as regards rainfall. April was showery throughout, with short heavy downpours on the 21st and 24th. May began and ended with rain, but the intermediate four weeks were, except for a few momentary showers, perfectly dry. June was rainy from beginning to end, with heavy downfalls on the 9th, 17th and 18th. A like description applies to July and August, two days' heavy rain occurring in each month. After the 3rd, September was perfectly dry. But whatever has to be said about health as influenced by meteorological conditions, the impression of comfort or discomfort left by a Shanghai summer depends far more upon the prevailing temperature, and especially upon the night temperature, than upon anything else. April, May and June were very variable as regards heat. A few hot days occurred in each month, but during the first half of June there were some days which were almost wintry. The maximum temperature registered in April was  $84^{\circ}$  (19th), in May,  $90^{\circ}$  (19th); in June,  $97^{\circ}$  (30th). The corresponding minima were, for April,  $38^{\circ}$  (5th), for May,  $48^{\circ}$  (5th), and for June,  $60^{\circ}$  (2nd and 31st). July was a month of suffocating nights, the temperature after midnight oscillating about  $81^{\circ}$ . The maximum ( $97^{\circ}$ ) was reached on the 1st, the minimum ( $72^{\circ}$ ) on the 30th. August, though very hot, was much more tolerable, the night temperature never having exceeded  $82^{\circ}$ , which it reached only once, the maximum for the month was  $95^{\circ}$  (18th), the minimum,  $66^{\circ}$  (31st). September was mild, a few very cold days in the last week seemed to promise an early autumn, but the month closed in the midst of unusual heat, the maximum temperature recorded was  $87^{\circ}$  (30th), the minimum,  $53^{\circ}$  (25th).



The autumn of 1890 began in the last week of October. Strong winds prevailed from December 1890 to March 1891, October and November having been calm, with the exception of two heavy blows on the 11th and 29th November. There were, however, no great atmospheric disturbances, except on the 26th February, which was marked by two violent thunderstorms. The winter was unusually dry. Hardly any rain fell in October and November, December, January and March were showery, with but slight rainfall, and February would have been classed as dry but for heavy falls of rain on the 4th, 26th and 27th. Cold weather did not set in until the 31st December. The first frost of the season occurred on the 13th November, and was the only frost for that month. In December there were only four days (14th, 16th, 30th and 31st) on which the mercury fell to freezing-point. January 1891 was very variable as to temperature, but was, on the whole, mild until the 31st, when the maximum reached was  $31^{\circ}5$ , the minimum being  $29^{\circ}$ . February was mild, there was no frost after the 20th. In March frost was registered on four days only, the weather was, however, cold to the 25th, when spring began. For October 1890 the maximum was  $80^{\circ}$  (1st), the minimum,  $39^{\circ}$  (27th), for November, maximum,  $73^{\circ}$  (28th), minimum,  $30^{\circ}$  (13th), for December, maximum,  $66^{\circ}$  (27th), minimum,  $23^{\circ}$  (31st), for January 1891, maximum,  $63^{\circ}$  (29th), minimum,  $19^{\circ}$  (16th—this was the coldest day of the season), for February, maximum,  $72^{\circ}$  (22nd), minimum,  $22^{\circ}$  (12th), for March, maximum,  $79^{\circ}$  (31st), minimum,  $29^{\circ}$  (11th).

During the summer months of 1889 the mortality among foreigners was singularly low. Cholera appeared early, caused one death in June, and then practically passed out of sight. The information that can be gathered about disease among natives is always vague and unreliable, and false in detail. But it was at least possible to ascertain that no fatal epidemic visited Shanghai or its neighbourhood, characterised by the more prominent symptoms of cholera. And although diarrhoea was prevalent among foreigners, as, in fact, it always is in late spring and summer, there was little or none of the "choleraic diarrhoea" which is separated only in degree from genuine cholera, and which usually, if not always, precedes and accompanies an epidemic of the latter. It may therefore be fairly a matter of doubt whether true cholera was really lighted up or not. I say "lighted up," and not "introduced" or "imported," for there can be no doubt that we are now, and probably have been for many years, quite competent to manufacture our own cholera. Supposing that the disease is dependent on the activity of special germs, the mode of preservation of those germs from one period of cholera prevalence to the next is a question not only of great interest theoretically, but of vast importance practically. We may attribute extraordinary tenacity of life to them, and assume that their functions are held in complete abeyance by the absence of certain unknown conditions, meteorological or other, or we may as reasonably, perhaps more reasonably, hold that when once domiciled and acclimatised in a locality they are always more or less active, so far as reproduction is concerned, but at the same time susceptible of such temporary modifications in correspondence with their environment as for the time being modify their virulence and restrain the complete exhibition of their powers. Under this latter supposition many diarrhoeas, classed as simple and running a favourable course, may be cholera in disguise. It is certain, however, that no attempt to exterminate cholera germs or any other germs can possibly succeed except by accident, and that such accident is extremely unlikely to occur. Hence the only directions in which efforts to arrest

or limit epidemic or endemic disease have any chance of being successful are two, namely, (1) investigation of the biology, physiology and pathology of specific germs themselves, which, if thoroughly carried out, may reveal the conditions most unfavourable to their life or special activity, or most favourable to their modification and retention in a modified and more or less harmless form, and (2) practical application of the law arrived at empirically thousands of years ago—that free access of light, rapid and thorough circulation of air, scrupulous cleanliness, attention to general health, and, in a word, all that is included in the expression “hygiene of the body and environment,” produce a condition of things eminently unfavourable to the development of virulence in the, by supposition, ever-present elements of contagious diseases.

Dysentery and diarrhoea were neither severe nor widespread. On the other hand, the eruptive fevers occupied a very important place in the morbidity of the foreign community. There was an epidemic of measles. Nine or ten cases of scarlet fever are known to have occurred, with two deaths. Small-pox, without being of unusual prevalence or severity, was present far on into summer, causing a death in July, and many cases of varicella were observed among children. Along with this group of eruptive fevers I place, for reasons which will immediately be obvious, the various forms of “sore throat.” For many years after the foreign Settlements of Shanghai had assumed, with respect to family life, the appearance and dimensions of a small European city, we were almost entirely free from the presence of the eruptive fevers, with the exception of small-pox, which is not an infantile malady. When there were no children, or very few, there was naturally no prevalence of infantile diseases, and even after children multiplied some time was required before these diseases established themselves. But their establishment was necessarily only a question of time, for in the first place, although even now we know hardly anything about the nature and prevalence of disease at any given time among the natives, we have always had indications that none of the forms of eruptive fever, including diphtheria, are absent from among them. This being so, it was clear, in the next place, that the unrestricted communication between native families of the lowest class and foreign families by means of servants, the rapid closing in of native dwellings round and between foreign houses, the dense overcrowding of the former, their unimaginable filth, the lack of any knowledge or any care on the part of natives with regard to the isolation of cases of contagious disease or the removal of the dead, must in time make foreigners sharers in every form of malady which at any given period might visit the natives epidemically. To enforce this *a priori*, but perfectly unassailable, reasoning, two circumstances brought their support. One was the occasional but rare occurrence of cases of eruptive fever—measles at first, soon with its invariable concomitant of whooping-cough, which speedily became endemic, then varicella, which, in forms of greater or less severity, is now seldom absent, parotitis and scarlet fever, which have as yet hardly acquired rights of citizenship, but soon will, and lastly, but very rarely, true diphtheria. The second, the importance of which has not yet been proved, is the rapidly increasing frequency of throat affections—catarrhal tonsillitis and pharyngitis, follicular tonsillitis, ulcerative tonsillitis, the peculiarity of these affections lying in this—that they are oftener than they ought to be accompanied by swelling and tenderness of the cervical glands, by apparently disproportionate febrile reaction, by ill-defined eruptions on the skin, and by a marked tendency to exudation. This exudation may frequently be completely removed in small fragments by gentle swabbing, leaving the mucous membrane beneath

congested but intact. But it is often more tenacious and adherent. These seem to be indications that the time is not far distant when scarlet fever and diphtheria will lose their present character of interesting rarities in Shanghai and become fatally familiar.

Judging by my own case books, I may safely say that typhoid fever was by no means common. Only two deaths occurred, both patients being non-residents. On the other hand, cases of malarious fever were constantly cropping up, and it will be observed that five deaths are attributed to the various forms of the disease. Several cases of pneumonia (almost unknown among foreigners in Shanghai a few years ago) were under treatment, but only two deaths (one in an infant) are recorded. Excessively high temperature in June, July and August sufficiently explains why a very large number of cases of heat malaise (with three deaths from heat apoplexy), congestion of the liver, obstinate dyspepsia, and menorrhagia swelled the sick lists of private practitioners.

The following table, in which the deaths of foreigners from April to December 1889 are tabulated, shows with sufficient clearness that the year, though, on the whole, an unhealthy one, was, as respects mortality, by no means unfavourable —

#### DEATHS of FOREIGNERS during the Months April to December 1889

CAUSE OF DEATH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
Small pox				1†						1
Scarlet fever			1			1†				2
Enteric fever				1*	1*		1			3
Malarial fever	1†			1 1†	1†	1				5
Beri beri		1								1
General tuberculosis		1†	1†			1†				3
Whooping cough					1†					1
Cholera			1*							1
Phthisis				1			1		1*	3
Pneumonia	1†				1*					2
Congestion of the lungs									1†	1
Abscess of the lung					1					1
Asphyxia neonatorum						1†				1
Laryngitis									1†	1
Disease of the heart	1					1	2			4
Aneurism		1*			1	1				3
Dysentery					1*	1 1*			1*	4
Chronic diarrhoea							1*			1
Cirrhosis of the liver							1			1
Abscess of the liver	1									1
Perityphlitis							1			1
Peritonitis	1*			1						2
Cirrhosis of the kidneys									1	1
Meningitis					1†	1*				2
Apoplexy				1					1*	2
Heart apoplexy				2 1*						3
Cerebro spinal sclerosis						1				1
Alcoholism		1	1							2
Convulsions					1†	1†				2
Debility						2†				2
Accidental poisoning								1		1
Ulceration of the brain								1		1
Drowned		1*						1*		2
Suicide			1							1
Not certified	1* 1†						1*			3
TOTAL	7	5	5	10	9	13	8	3	6	66

\* Non residents

† Children

Malarial fevers, which, as I have said, were observed with unusual frequency during the summer of 1889, continued to prevail throughout the subsequent winter. No deaths, however, were recorded. I may note, as a rather curious circumstance, that during the six months I had in my own practice four cases of quartan ague, a form which, so far as my experience goes, is extremely rare here. Three deaths (two among residents—one in October 1889 and one in January 1890) are attributed to typhoid fever. 28 cases of this disease (or 65.1 per cent of all admissions) were treated in the Shanghai General Hospital in 1889, with a mortality of 4 (or 14.30 per cent). The number of cases under observation was certainly larger than during summer, but the type was mild, as, indeed, may be inferred from the trivial mortality. Diarrhoea, dysentery and dysenteric diarrhoea occurred with great frequency, and, along with an unusually wide prevalence of pulmonary affections and of eruptive fevers, rendered the winter season distinctly unhealthy. Bronchitis was widespread, and several cases of pneumonia came under observation. Personally I found that in the majority of the cases of pneumonia treated by me both lungs were affected, but this may have been a mere chance experience. Many patients were supposed, and supposed themselves, to be attacked by "influenza," but for my own part I was unable in any instance to discover a difference between the symptoms described and those which at times when influenza is not the fashion would be grouped under the vulgar name of a "feverish cold." It is worth noticing that although true influenza, as described by observers in Europe and America, is very frequently followed by distressing and even dangerous sequelæ, the affection which went by that name in Shanghai, when once recovered from, left no traces behind it. The same prevalence of menacing throat inflammations was observed in the winter half-year as had been observed in summer. There was, however, no death from either diphtheria or scarlet fever.

The eruptive fevers were, as I learn from native sources, unusually severe and widespread among the Chinese during the winter of 1889-90. Small-pox was in a vague way described as a pestilence. Foreigners did not suffer severely from this disease, only one death (in March 1890) having occurred. Varicella, in many instances of a type that might almost be described as virulent, prevailed among children, especially after the first week of December 1889.

One case in particular which came under my observation would, I am convinced, but for external and accidental circumstances, have been at one moment mistaken for small-pox. The patient was a girl, 11 years old. She and her sister, a child of 10, had been successfully re-vaccinated two months previously. The younger child took a mild attack of varicella, with successive crops of clear vesicles, with hardly any febrile reaction and no involvement of the mucous membranes. The elder child was attacked a week later, but was not seen until the third day of the eruption, when the face, scalp, body and extremities were covered with a vesicular eruption, and the temperature was continuously above 103° day and night. There were 10 or 12 vesicles on the hard and soft palate and fauces, and dysphagia was very distressing. Here and there the base of a vesicle was hard and surrounded by a slight areolæ. The characteristic odour of small-pox was, however, wanting. The eruption became pustular a couple of days later, but only in places exposed to friction. The vesicles which were not interfered with dried up, and where scabs formed, and in process of time fell, the cicatrices were superficial and disappeared in a few weeks.

Measles was infrequent until January 1890, in which month and later several adults were attacked as well as a multitude of children. Many, if not most, of the adults seen by me had a history of ordinary home measles in childhood.

Simultaneously with measles, rotheln and whooping-cough made their appearance, according to the general rule Rotheln occurred with great frequency in February, characterised by an invasion period of general malaise and sore throat, followed by patches of roseolar eruption, slight coryza and lachrymation, and finely furfuiaceous or altogether invisible desquamation. The temperature in these cases is almost always, if not always, high out of all proportion to the importance of the disease, 105° F being commonly enough observed in very young children.

The supervision exerted by the Municipal Councils over butchers, milk-sellers, dairy-keepers and publicans is no doubt productive of much good to foreigners, but the belief, if it exists, that any precautions taken by a public body so limited in its powers as is the Municipal Council can "render the occurrence of cholera or any other disease in an epidemic form almost impossible" is a pure delusion. We cannot protect the Chinese against themselves, the most we can do is, by personal and domestic care, to protect ourselves against them. Powers to compel notification of contagious disease and of death, to enforce disinfection, and to prevent overcrowding in native tenements are all wanting, and, until they are obtained, efforts to secure hygienic conditions among the Chinese in our midst must remain largely fruitless. Meanwhile a good deal of money is being annually wasted on "disinfectants," which, in the quantities used, do not disinfect, but are simply deodorants. Careful scavenging and the liberal use of water under pressure, and of lime, are the only effectual and non-destructive measures which can be applied on a large scale to the disinfection (which is really only the cleaning under a more thorough and elaborate form) of native houses, courts and alley-ways. One great advantage of the acquisition of the waterworks by the Council would be the possibility of preventing the use of the river and creeks as sources of native water supply. No doubt year by year more and more pipe water is used by the Chinese, but there is still, at any given moment, an immense store of river and creek water in *kang* in native houses and yards, nominally undergoing the alum-precipitation process, but really, in addition, taking up inert and dangerous impurities, besides, in all probability, maturing the organic impurities which it contained when drawn. It is a mistake to believe that a Chinaman drinks nothing but tea or boiled water. To say nothing of the great consumption of ices by natives in summer, or of the quantity of pond ice eaten, a thirsty Chinese, who cannot at the moment provide himself with tea, and finds reasonably clean water under his hand, will drink the water without once thinking about its intimate purity.

How important the supervision of native taverns is may be judged from the following extract from the *North-China Daily News* of the 12th February 1890. This case was, happily, detected, but there can be no doubt that it is representative of a large number which escape notice, and which would, if discovered, explain many of the obscure affections for which foreign sailors are brought under medical observation.

At the Mixed Court, on the 8th February, the keeper of a native tavern was fined \$10 for selling foreign liquor—gin—to a sailor. The gin was so strong that when a drop of it was put on a brass dollar, the coin turned green. The stuff was sold at the rate of 30 cash for a glass about half the size of an ordinary tumbler.

This casts into the shade the "Hongkew gin" which, many years ago, I announced as an excellent liniment for ponies suffering from strains, and about which I was subjected to much good-natured ridicule in the newspapers and elsewhere.

Among the diseases of the summer months of 1890 cholera was predominant, its visitation, so far as foreigners were concerned, being almost exactly limited to August and September. Already, however, in July many cases of cholera and of severe choleraic diarrhoea had been admitted to the hospitals for Chinese, and the native employés of St Luke's Hospital reported at that time that the mortality among the natives was excessive, cases of sudden collapse, with or without vomiting and diarrhoea, occurring with frequency in every quarter of the Settlements. The first death registered from this cause occurred on the 2nd August, the last on the 29th September. 18 cases were fatal among residents and 14 among non-residents. The degree of fatality of the disease may be judged from the fact that out of 27 cases admitted to the General Hospital 17 died, the per-centage (62.96) being below the average in Shanghai. During the prevalence of cholera here the disease raged like a pestilence in Japan. As usual during a season in which cholera is widespread, affections of the bowels of every degree of severity came under observation with great frequency. Diarrhoea was exceedingly prevalent in August, both the simple form and one of so much severity that it might be qualified as choleraic. Many cases of dysentery likewise occurred, and, in my experience, were unusually obstinate. Few will now be found to deny that genuine cholera is a disease of specific character, breeding true from a specific germ, although all the symptoms, whether taken singly or grouped in any imaginable fashion, may be found in other affections having no relation whatsoever to cholera. It may, of course, be assumed that the causes of these affections have the power of exerting such a modifying influence on certain bacterial forms always present in the intestinal tract, and generally innocuous, as to transform them into organisms identical with, or closely allied in properties and functions to, those which produce the toxine or toxines of cholera. No direct observations have, however, been recorded in support of any such theory, which, if it were proved, would cast a very important light on a region of pathology which is at present plunged in darkness. It is, at any rate, certain that when cholera flourishes it does so not only in consequence of a possibly enhanced virulence of its germ, acquired in virtue of hitherto unknown conditions, but also in consequence of an epidemic constitution, likewise depending on unknown conditions but manifesting itself by a previous and contemporaneous prevalence of catarrhal bowel affections. Here, too, it may be said that these affections are, for a great part, cholera in disguise, and there exist, in fact, observations to support this view. But there remains a remnant which cannot be so explained, but which becomes intelligible on the assumption of some conditions, meteorological or other, specially favourable to the development of all the causes productive of intestinal fluxes.

During this cholera season the type of disease showed some deviation from the usual standard. Thus, for example, there were cases which, after apparent convalescence, terminated fatally from suppression of urine. Of these, while none, so far as I know, were absolutely sudden, some were extremely rapid when once suppression occurred. Others assumed a more chronic form, lasting from three to ten days, with uræmic symptoms. There was at least one case in which fatal dysentery swiftly supervened on cholera, and more than one marked by cerebral symptoms with violent delirium.

Apart from phthisis (three cases), only one death occurred from disease of the chest. Pulmonary affections were, in fact, infrequent and mild during this summer. There was, however, the same prevalence of sore throats of all kinds and degrees, which has been so often noted

Of the fevers, typhoid and malarial fevers were remarkably infrequent. Simple catarrhal fever, or "influenza," was of common occurrence, but as no death was attributed to it, it may be assumed that the affection is not very formidable. Its peculiarity appears to lie in the nervous prostration it induces, which is out of all proportion to the degree of fever or to the severity of the muscular pains and bronchitis which, apart from the prostration, are the only important symptoms. Measles and whooping-cough occurred, but with no great frequency, among children. There were many cases of varicella, and small-pox caused two deaths in April 1890, one occurring in the person of a resident.

The following table completes the statistics of deaths up to the 31st December 1890 —

### DEATHS OF FOREIGNERS during the Year 1890

CAUSE OF DEATH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
Small pox			1†	1 1†						1*			4
Typhus fever							1†						1
"Fever" and enteric fever	1 1†							1†	1		1 1†		5
Malarial fever					1*								2
Cholera								10 8* 6†	6 4*				34
Influenza											1†		1
Diphtheria							1†					1†	2
Syphilis							1	1*					2
Cancer								2		1			3
Diabetes						1							1
Bright's disease	1		1		1								3
Phthisis	2		1		1			1*			1	1	7
Tubercular enteritis				1*									1
Meningitis	1†							1*	1†	1	1†		5
Convulsions			1†										1
Cerebro spinal sclerosis	1								1				1
General paralysis													1
Heat apoplexy							1	1†					2
Apoplexy			1*								1		2
Hemiplegia		1*											1
Locomotor ataxy										1			1
Disease of the heart				1†						1			2
Heart failure and syncope			1*				1		1†		1		4
Aneurism		1*						1					2
Bronchitis								1					1
Pulmonary embolism						1						1*	2
Peritonitis						1					1		2
Intestinal obstruction				1									1
Enteritis and gastro enteritis								1 1†					2
Diarrhoea				1									1
Dysentery								2 1*	1				4
Cirrhosis of the liver								1*					1
Abscess of the liver				1		1			1*				3
Icterus neonatorum								1†					1
Sclerema						1†							1
Injuries		2*			1†								3
Drowned						1*	1 2*			1*			5
Not certified	1				1 1†		1†	1*		1*	1 1*		8
TOTAL	8	4	6	7	6	6	9	41	16†	7	10	3	123

\* Not resident (35)

† Children (28)

There was no fatal case of cholera in the winter season 1890-91. Why the disease should have been suddenly arrested at the end of September is a question to which no answer is at present ready. The weather did not become cold until the last week of October, which month, although extremely dry, was no drier than September. September, it is true, was very stormy throughout, while October was remarkably free from atmospheric disturbances, and this was the only difference which existed between the two months in respect of the more obvious meteorological conditions. Diarrhoea, dysentery and dysenteric diarrhoea were observed, but exhibited no severity, only one death being registered during the half-year from these affections. On the other hand, there was a very wide prevalence of bronchitis, and several cases of pneumonia (three fatal) were under treatment. Roughly, it may be said that there is a sort of equilibrium established in any given season between affections of the respiratory and those of the intestinal tract. When either group enters into activity, the other is more or less in abeyance. Tonsillitis of varying degrees of severity was always well in evidence, and several cases of parotitis occurred, especially in January, though there was nothing that could be qualified as an epidemic of mumps.

Two cases of severe sun malaise came under my notice at the end of March 1891, when, although the temperature was by no means excessive, the direct impact of the sun's rays was, as is often the case even in December, especially trying. When such instances occur there is probably some associated atmospheric state or some widespread, though probably trivial, epidemic constitution which, if known, would explain the difference which exists between the effects of exposure to the sun at different times under conditions of elevation, temperature and cleanness of the air which are apparently identical.

The eruptive fevers prevailed throughout the six months. Small-pox caused three deaths—one in October 1890, two in January and one in February 1891,—and several cases of the disease among residents and non-residents were treated in hospital or elsewhere.

Two cases occurred among the members of the out-door staff of the Customs in February. Both patients had been searching native baggage a few days before they fell ill. Both bore good vaccination marks, and both recovered.

Measles is now seldom absent from the Settlements. Many children suffered from it or from varicella, which, though frequent, was not epidemic, during the latter half of the season. Catarrhal fever was likewise very prevalent. Typhoid fell lightly, only one case having proved fatal among residents and one among non-residents. On the other hand, malarial fevers were constantly present, and it again happened that a few cases of the unusual quartan form came under my care. No doubt I had not the monopoly of them.

In October I observed a curious form of fever which puzzled me then, and puzzles me still. In my practice it occurred in only two families, living in the same house and presumably under the same conditions as regards contact with the Chinese, they may therefore be considered as forming one group. I saw, however, two Chinese families through which the disease was running, and I was informed that a multitude of natives were affected in the same way.

The onset of the affection was in all cases sudden, with violent headache and vomiting, quickly followed by a scarlet suffusion, without definite spots, of the whole skin, and invincible drowsiness. In one of the two families referred to the mother was first attacked—18th October,—one child on the 19th,



two children on the 20th, one child on the 21st, one child and two adults on the 22nd. The father thought himself threatened, but saturated himself with quinine, and suffered only from headache and vomiting. The mucous membranes were not affected, but in all the cases there was a profuse flow of limpid urine during the entire illness. After 48 hours, eruption and fever disappeared, and then cough with slight sore throat supervened. The highest temperature registered was  $103^{\circ} 2$  in adults, and  $105^{\circ} 4$  in children.

At the same time I observed, chiefly among children, a great number of cases of two days' fever, apparently very contagious, accompanied by tonsillitis, pharyngitis and cough. This was generally dignified with the name of influenza, but bore no resemblance to that disease. The fever rose to  $104^{\circ}$  or  $105^{\circ}$ , but there was no rash. Let alone, or treated with quinine or anything else, the fever fell after 48 hours, and convalescence was rapid. Seeing it at first among children only, I was inclined to attribute it to errors of diet, but this was a mistake.

The two affections thus briefly described were evidently closely allied forms of some single malady

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CHINA.

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IMPERIAL MARITIME CUSTOMS.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1891

42<sup>nd</sup> Issue.

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PUBLISHED BY ORDER OF  
*The Inspector General of Customs.*

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SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS  
AND SOLD BY

KELLY & WALSH LIMITED SHANGHAI HONGKONG, YOKOHAMA, AND SINGAPORE  
LONDON P S KING & SON, CANADA BUILDING KING STREET, WESTMINSTER, S W

1894

[Price 51]



# INSPECTOR GENERAL'S CIRCULAR No 19 OF 1870

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INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December 1870

SIR,

1—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China, and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at                      upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a—The general health of                      during the period reported on, the death rate amongst foreigners, and, as far as possible, a classification of the causes of death.

b—Diseases prevalent at

c—General type of disease, peculiarities and complications encountered, special treatment demanded

d—Relation of disease to { Season  
Alteration in local conditions—such as drainage, etc  
Alteration in climatic conditions

e—Peculiar diseases, especially leprosy

f—Epidemics { Absence or presence  
Causes  
Course and treatment  
Fatality

Other points, of a general or special kind, will naturally suggest themselves to medical men, what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr ALEX JAMIESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated, and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr \_\_\_\_\_, and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons

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I am, etc,

(Signed)

ROBERT HART,

I G

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*  
*Tientsin, Foochow,*  
*Chefoo, Tamsui,*  
*Hankow, Tarnan,*  
*Kiukiang, Amoy,*  
*Chinkiang, Swatow, and*  
*Shanghai, Canton*

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SHANGHAI, 15th July 1894

SIR,

IN accordance with the directions of your Despatch No 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents —

Report on the Health of Wuhu for the two and a half years ended 30th September 1891, pp 21-26

Report on the Health of Seoul (Corea) for the year ended 30th June 1891, pp 7-9

Report on the Health of Swatow for the year ended 30th September 1891, pp 4-6

Report on the Health of Chemulpo (Corea) for the half-year ended 30th April 1891, p 10

Report on the Health of Kiukiang, pp 1-3,

Report on the Health of Ichang, pp 11, 12,

Report on the Health of Pakhoi, pp 17, 18,

Report on the Health of Wenchow, pp 19, 20,

Report on the Health of Shanghai, pp 43-47, each of these referring to the half-year ended 30th September 1891

Medical Report on Chungking, pp 13-16

Abdominal Hysterectomy in Japan, pp 27-33

The Influenza Epidemics in Foochow, 34-36

On Mr J T Roe's Theory that Influenza is Endemic in China, pp 37-42

I have the honour to be,

SIR,

Your obedient Servant,

R ALEX JAMIESON

THE INSPECTOR GENERAL OF CUSTOMS,  
PEKING

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The Contributors to this Volume are —

GEORGE R UNDERWOOD, MB, CM, L R C S E d	Kiukiang
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J WILES, M R C S, L S A	Seoul, Corea
E B LANDIS, M D	Chemulpo, Corea
E A ALDRIDGE, L M & L R C P I, M R C S	Ichang
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A SHARP DEANE, L R C P I, L R C S I	Pakhoi
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R ALEX JAMIESON, M A, M D, M R C P	Shanghai

For everything enclosed within square brackets [ ], the compiler is responsible

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## DR GEORGE R UNDERWOOD'S REPORT ON THE HEALTH OF KIUKIANG

For the Half-year ended 30th September 1891

WHILE there have been several fatal cases, there has not been more than the ordinary amount of sickness in the Concession during the past six months

One foreigner, who for years had been accustomed to smoke opium to a moderate degree, died from chronic albuminuria, with lung and heart complications. He had been the subject of enthetic disease, had not always been temperate, and had frequently suffered from acid dyspepsia, so that the influence of the opium habit in directly causing the albuminuria cannot be determined.

A second patient, an elderly pumipara, died as the result of septic poisoning on the seventeenth day after parturition. The symptoms first showed in a mild form on the fourth day, and on the sixteenth, when—the fever having all but gone and the general condition much improved—I thought the worst was over, serious signs of cardiac failure became apparent, and the end soon followed.

One other death was from a gun-shot wound. Late one afternoon three men of the Customs outdoor staff were walking on the city wall, one carrying a fowling-piece being a little behind the other two. As he was bringing the gun to his shoulder to fire at a passing bird, the trigger caught some way or other, and was pulled, and the shot entered the neck of one of the men in front at the level of the first and second cervical vertebrae, and half an inch to the right of the spinous processes. So close was the range that the skin round the opening (which was 1 inch in diameter) was stained by gunpowder over an area of  $1\frac{1}{2}$  inch all round. The right halves of the atlas and axis were smashed, the cord was cut through, and the track passing forwards, upwards, and slightly outwards, the internal carotid was severed and the important nerves of the region torn. Pellets appeared under the skin at the right inferior orbital margin, the floor of the orbit being in fragments.

Another patient, æt 24, died from confluent small-pox at Lungping, 20 miles from this place. He had strong objections to vaccination, and declined to have it done. Could he have foreseen the anxiety and trouble which those friends who so devotedly nursed him had to endure, his anti-vaccination views (which in this country imply a decided want of consideration for others) would have been willingly put aside.

Among the Chinese the summer was healthy, though in some villages north of the river, and in one of the camps outside the city, a continued fever prevailed, with a considerable mortality. In Kiukiang itself the season has been good, and I have not heard of a single case of cholera in the whole district. The number of patients coming to the dispensary diminished by more than half, owing to the disturbed state of the Yangtze valley. Of late, in spite of renewed alarms, the attendance has increased, and at present the hospital is full.

The following case is interesting, as pointing out a method of testing for opium not generally practised in Western countries and not even named in the text-books —

Two Cantonese, in good circumstances, one a comprador in a foreign hong and the other a writer in the Maritime Customs service, were living in adjoining houses in an alley behind the China Merchants' hong. The wives of the two quarrelled, then amahs joined in, and finally the husbands got involved in

the difficulty It seems that the comprador's wife made some defamatory statement regarding the writer's amah, in consequence of which the latter lost her situation She promptly went to the comprador's house, and explaining that as they had taken away her good name and means of earning a living they must now keep her, she took up her abode as a member of the household This was borne for two or three days, and then the comprador gave the woman \$30 to get rid of her She went off with the money to her husband's house, when she was accused of getting the dollars by illegitimate ways, and told by her husband to go away for good In the evening of the same day she returned to Kiukiang, bought on the way a quantity of extract of opium, swallowed it, went to the comprador's house, and took up her abode there as before There they saw nothing unusual in her appearance, but towards bedtime she was noticed to be very drowsy She became gradually worse, and at 2 A M I was called, and found her semicomatose She was carried to the hospital and measures taken to bring her round All was of no avail, however, and she died at 7 A M The friends did not wish to remove the body, as their chances of blackmailing the comprador would thereby have been much diminished A report got abroad, too, that the woman had not died of opium-poisoning, but had been beaten to death, and to give no chance of raising a disturbance, the native authorities were called upon to deal with the matter in their own way The city magistrate accordingly sent his myrmidons to make the necessary preparations for holding an inquiry as to the cause of death In the courtyard of the hospital they stuck four bamboo rods in the ground, 6 feet apart, and on these, at the height of 5 feet, fastened a rush mat, to protect the body 20 yards to windward of this, and under a roof, a chan for the magistrate was placed, with his writing table in front Between the chan and the body were several rows of lighted joss sticks, with a view apparently to masking the smell The magistrate arrived soon after the preliminaries had been got ready, saw the corpse in the room in which death had taken place, and ordered it to be carried out and placed on boards under the mat He then took his chair, plugged his nostrils with the dried leaves of an artemisia, and, pen in hand, was ready His attendants and followers followed his example, and plugged their nostrils with whatever came most handy The woman's husband was then brought forward, his evidence taken, and all signs of emotion on his part sternly forbidden, his intimate relationship with a turtle being very energetically pointed out to him from the bench Much interest was taken in the proceedings, and roofs and walls in the neighbourhood were crowded with onlookers The body of the deceased was now ordered to be stripped for the inspection of the official viewer He examined it in detailed order, as prescribed, and, fortunately for the comprador, found no mark of any blow, recent or otherwise The testing for opium then began The mouth, nostrils, vagina and rectum were plugged with wet paper Two probes of untarnished silver, about  $\frac{1}{8}$  inch square and 12 inches long—the one end being pointed and the other turned to a ring,—were brought forward The first was passed in by the mouth downwards as far as it would go, and the second by the rectum up to the ring The face, sides of the head, thorax and abdomen were wrapped with sheets of moistened paper The body was then completely covered with an old cotton quilt, and on this a second was placed, both being closely tucked in all round Four candles were stuck in the ground, near the feet, and lighted, one of them being marked at a point which would be reached in an hour and a half from the time of lighting Boiling water was now brought in buckets and poured over the covered corpse, kettleful after kettleful, as quickly as it could be got from a hot water shop close by Meantime the mother of the suicide had come, and as she was more demonstrative than the magistrate desired, she was made to squat on the ground and be silent The father also came, and knelt in the usual way before the magistrate, who listened to him for a little, and then ordered him to sit down beside his wife and be quiet It was a hot afternoon—over 95° in the shade,—and doubtless trying to the temper of even a Chinese mandarin Meanwhile the pouring of water went on steadily. Occasionally his honour would enliven the waiting by some acid remarks on the behaviour of his attendants, in a tone which indicated that they were meant for general edification After an hour and a half the pouring of water was stopped, the face uncovered, and the probe passed in by the mouth withdrawn It was not tarnished Pouring of hot water was resumed, and in another quarter of an hour

it was again withdrawn, and found to be blackened. The rest of the body was then uncovered, and was seen to be much swollen, especially the abdomen, from the development of gases during the hastened decomposition produced by the continued application of heat. The probe in the rectum was also found to be tarnished. This was held to be unmistakable proof of the presence of opium. As to whether the blackening was due to the deposit of opium on the surface—the silver acting as a loadstone,—no opinion was given, but I am inclined to think that such was the mandarin's belief. The body was now placed in a coffin and taken away for burial.

A very unusual accident—rupture of hæmorrhoids from a kick,—which might have led to a disturbance, happened here a few days after the last-mentioned case.

An auction was about to commence at the house of the foreign inspector of police, when a native in white clothes was noticed to appropriate a silk handkerchief from the things to be sold. The inspector caught him and accused him of the theft, and on his denying, opened his coat and found the missing article. He took him by the queue, ran him to the gate of the yard, and gave him a parting touch with the tip of his boot. The man went away, and a few minutes afterwards I was called to a room occupied by a native guard at the T'ien-chu-t'ang gate, to see a military mandarin who was supposed to be dying from injuries received at the hands of the foreign inspector of police. I found his trousers saturated with blood. Being a petty officer, the sight of the blood caused much excitement among the soldiers, some of whom had gone for a superior. On examination, it was found that the man had hæmorrhoids, that one of these had given way, and that bleeding had already stopped, though he had lost a large quantity of blood. By way of treatment, his blood-stained garments were sent to the wash, being replaced by blue ones, he himself put in bed in the hospital for the night, and the incident was at an end. He said little, knowing that the proofs of his theft were too strong. Had it been otherwise we should certainly have had trouble with his fellows.

I am indebted to the Harbour Master for the following abstract of meteorological observations —

METEOROLOGICAL TABLE, April to September 1891

MONTH	THERMOMETER.				RAINFALL.	
	Maximum		Minimum.		No of Hours	Quantity
	Highest	Lowest.	Highest.	Lowest.		
April	°	°	°	°		<i>Inches</i>
May	82	53	70	44	85	6 53
June	94	64	76	52	54	3 57
July	96	75	81	66	36	5 10
August	100	77	84	71	58	6 99
September	102	79	84	73	26	3 26
	94	71	80	59	4	0 46

# DR HENRY LAYNG'S REPORT ON THE HEALTH OF SWATOW

For the Year ended 30th September 1891.

METEOROLOGICAL TABLE, October 1890 to September 1891

MONTH	WIND					BAROMETER				THERMOMETER						WEATHER		
	No of Days N to E	No of Days E to S	No of Days S to W	No of Days W to N	No of Days Calm	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Highest by Day	Lowest by Day	Highest by Night	Lowest by Night	Averages		No of Days Rain	Rainfall	No of Days Fog
														Wet Bulb	Dry Bulb			
1890	D h	D h	D h	D h	D h	Inches	Inches	Inches	Inches	°	°	°	°	°	°	D h	Inch	D h
October	16 18	11 0		2 6	1 0	30 32	29 81	30 40	29 85	83 0	68 0	82 0	65 0	68 6	73 3	0 8	1 77	0 12
November	9 6	12 18	0 12	3 6	4 6	30 37	30 08	30 40	30 17	75 0	61 0	76 0	61 0	63 0	67 2	0 18	0 29	0 16
December	13 18	12 6	0 12	1 18	2 18	30 38	29 99	30 45	30 05	74 0	55 0	70 0	57 0	55 2	64 8	1 14	2 59	1 0
1891																		
January	26 12	1 0		0 12	3 0	30 45	30 10	30 45	30 10	76 0	52 0	67 0	41 0	58 0	60 0	0 2	0 16	0 1
February	13 0	9 12	1 18	0 12	3 6	30 55	29 97	30 56	29 97	84 0	47 5	71 5	42 0	55 0	58 0	2 3	1 03	1 0
March	12 6	13 12	0 6	1 12	3 12	30 45	29 88	30 38	29 92	75 0	50 5	65 0	46 0	56 5	59 5	3 2	5 71	2 6
April	8 6	14 0	2 18	1 6	3 18	30 34	29 90	30 31	29 90	84 0	57 0	76 0	50 0	64 8	67 2	2 12	3 58	0 22
May	5 6	12 18	9 6	0 18	3 0	30 27	29 82	30 25	29 85	91 0	65 0	83 0	59 0	72 8	75 1	4 14	20 96	0 74
June	2 18	14 6	6 12	1 18	4 18	30 04	29 60	30 02	29 67	95 0	75 0	85 0	69 0	78 2	79 9	4 4	11 11	0 6
July	2 12	13 6	12 12	2 0	0 18	30 03	29 56	30 05	29 58	93 5	74 0	85 0	73 0	79 6	82 8	3 5	15 14	
August	4 18	13 0	7 18	1 18	3 18	30 09	29 67	30 09	29 71	96 0	73 0	89 0	73 0	79 4	83 4	2 2	8 79	
September	10 18	9 6	2 18	4 0	3 6	30 16	29 08	30 10	29 69	94 0	70 0	85 0	70 0	77 7	82 0	1 104	6 51	

For the meteorological observations I am indebted to the kindness of Tidessurveyor Mr J H C GUNTHER

The weather during the winter months calls for no special remark. The summer was exceptionally cool and long, the heat continuing far into the autumn. Excessive rain fell during May, June and July, the rainfall registered during these months being 47 21 inches. On 23rd September the port was visited by a severe typhoon, the barometer falling as low as 29 08.

The 12 months under consideration do not admit of a favourable report, the number of deaths among foreigners exceeding that of any previous year. From all accounts, the death rate has been equally high among the natives, in the village of Kakchio, situated on the south

side of the river, at the back of the foreign Settlement, where some 200 live, I can speak from personal knowledge that they have suffered worse than the foreigners

The chief causes of sickness were —epidemic influenza, in the spring, gastro-intestinal catarrh, in the early summer months, and epidemic cholera, in July, August and the early part of September. Measles of a very mild nature was prevalent among the natives during the summer months, some few children of foreigners were attacked

Cases of malarial fevers were not more numerous than usual

In all, seven deaths occurred, the causes were as follows, one from each —

Facial erysipelas in a paraplegic  
Chronic bronchitis with morbus cordis  
Typhoid fever  
Diabetic coma  
Epidemic cholera  
Acute nephritis with acute hepatitis  
Aneurysm of the descending portion of the arch of the aorta

#### EPIDEMIC INFLUENZA

During the spring about 20 foreigners were attacked, and it is noteworthy that in the epidemic of last year all of these escaped. The cases were, on the whole, less severe than those of 1890, not one being followed by any serious sickness. At the lighthouses on Sugar Loaf and South Cape the entire foreign and native staff were attacked within a few days of each other. Among the native population the epidemic would appear to have been less widespread, but a greater number of cases of subsequent pneumonia applied for treatment at the mission hospital

#### GASTRO-INTESTINAL CATARRH

During the early summer months this was very prevalent, few persons escaping without a slight attack. These cases were all attended with vomiting or nausea, diarrhoea and flatulence, the stools being always deficient in bile. In all cases bile was found in the urine, and in three or four there was distinct jaundice. Usual duration was from two to four days, occasionally prolonged to from seven to ten days. 2 grains of euonymin every other night with a carminative rhubarb mixture, with careful diet, proved the most successful treatment. Prolonged diarrhoea, which only yielded after some weeks of an entirely milk diet, followed in two cases

#### EPIDEMIC CHOLERA

In July, August and the early part of September cholera raged among the natives in the districts round Swatow. The epidemic was much less severe in Swatow itself than in the outlying large towns and villages. For the first time since foreigners have lived here three residents were attacked, of these, two recovered and one died. In the early weeks of the

epidemic death frequently occurred in a few hours Many reports of death in a few minutes and of men falling down dead reached me Towards the end the cases were much less severe, and were apparently often cured by drugs During the cholera season many cases of diarrhoea were under treatment

At the Seamen's Hospital two cases of cholera landed from steamers were admitted, both recovered

Five cases of acute dysentery were treated with small doses of Epsom salts, with very satisfactory results The drug was administered in  $\frac{1}{2}$ -drachm doses every hour or two, for a period extending over from 24 to 72 hours In all the cases decided improvement followed within 12 hours The straining and pain first subsided, and the stools gradually became yellow and feculent Ipecacuanha was given in cases side by side with these, and in one, in which it completely failed, quick improvement followed treatment with Epsom salts The nausea and vomiting that frequently follow the administration of ipecacuanha are most distressing to the patient, and often much dreaded, these, together with the subsequent depression, are all avoided by the use of Epsom salts

There were nine births during the year

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## DR J WILES'S REPORT ON THE HEALTH OF SEOUL (COREA)

For the Year ended 30th June 1891

HAVING been resident in Corea for a few months only, my present Report must consist of a short *résumé* of the principal points of sanitary interest which I have noticed during the period that I have been here

Last summer seems to have been exceptionally trying to Europeans at Seoul. There was an unusual amount of malarial fever. Four deaths occurred—the population having been about 80, giving a death rate of 5 per cent. The causes of death were—

Abscess of liver	1	Pneumonia	1
Typhoid fever	1	Acute dysentery	1 (young child)

The prevalent diseases are dependent upon malarial influences. Ague is the form most commonly met with among the inhabitants of Corea. Generally speaking, it is of mild type and readily yields to treatment. It seems to exist at all seasons of the year, and especially in the spring months.

I have, so far, seen but few cases of typhoid fever in Seoul, as for this disease the people seem to prefer the treatment, such as it is, of Corean doctors. Two cases occurred among the French mission, one of which was fatal. One was traceable to the use of contaminated water.

A considerable number of cases of leprosy come for treatment at the hospital. Most of these are from distant country villages, and it would seem that in some places in Corea the disease is very prevalent, but from my personal observation it is rare in Seoul.

It would be interesting to know how long syphilis has existed to its present extent in Corea, considering how little intercourse the inhabitants have had with other countries. Its ravages are enormous, men, women and children of all classes suffering from its effects, and if it continues unchecked, the population must deteriorate in health and strength. As it is, its evil effects upon the young children are most marked. One curious feature about its prevalence is the total lack of any feeling like shame exhibited by Coreans suffering from it. They appear to look upon it in exactly the same light that a Western would as regards an attack of measles or scarlet fever.

Ophthalmia, next to syphilis, is the disease of Corea. It is very like that met with in Egypt, and its ravages are nearly as great. Its cause is also the same—filth and contagion,—and it will be a long time before any efficient measures can be taken to prevent it. The number of children who are brought for treatment after the eyes have been quite destroyed by it is very large. In no single case that I have seen has any attempt been made to lessen its effects by



washing or removing the discharge from the eyes In fact, the use of water is considered as generally deleterious to children

Seoul has fortunately escaped any epidemic during the past year In September cholera appeared in Fusan, but, from all I can learn, not in a very virulent form One or two cases occurred at Chemulpo and also at Seoul, but the disease did not spread among the people, which was rather remarkable, considering the insanitary condition of the place Perhaps its stoppage depended upon its reaching Seoul late in the year, when cooler

Seoul has been unusually free from small-pox during the past year It is always present, and, in fact, inoculation of this disease is the usual practice Vaccination has made but slow progress among Koreans It is difficult to get the people to bring their children to be vaccinated in sufficient numbers to keep up a supply of vaccine Some of the Korean doctors have, however, begun to vaccinate; so that it is getting to be known The destruction caused among children by inoculation is dreadful, and, in consequence of the contagium being applied to the nostrils, it would seem to affect their faces and produce blindness and closure of the nares The number of children who are made blind from this is very large, and it is much to be hoped that vaccination will soon become more general

Judging from my short experience of Corea, I consider that the climate is a very good one, and if only sanitation was a little attended to, this country would be very suitable as a sanitarium for those who suffer from the ill effects of residence in China The climate is dry, with the exception of two months in the year, viz, July and August, and the number of bright, sunny days, even in winter, is remarkable The winters are cold, but short, and even in the coldest weather constant sunshine makes the days pleasant

Tuberculous disease of lungs is not common, and the children have a healthy appearance, in spite of the horribly insanitary conditions in which they are brought up

The country, from what I have seen of it, is most fertile, and were a little attention given to sanitary matters and to the making of roads, etc, Corea seems to me to have the means of becoming not only a healthy country but also a rich one

The estimated number of foreign residents in Corea is as follows —

Americans	55
French	28
Germans	26
British	23
Russians	8
Italians	3
Spaniards	1
Austrians	3
Portuguese	1
Danes	1
	<hr/>
Total	149
	<hr/>
Japanese	7,913
Chinese	1,234

In consequence of the small number of foreigners resident in Corea, little has been done to help to improve the habits of the natives as regards their insanitary surroundings and the care of the sick, but they already appreciate the dispensaries and small hospitals which have been working for the last few years, and these, it is to be hoped, may be able to extend their operations, when funds permit, so as to establish a good hospital for the treatment of disease and also for teaching medical science to Coreans and training them as practitioners

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## DR E B LANDIS'S REPORT ON THE HEALTH OF CHEMULPO (JENCHUAN), COREA,

For the Half-year ended 30th April 1891.

DURING the half-year ending with April there were very few cases of sickness among Europeans

The winter was mild, more so than for many years previously, the climate in this vicinity being unusually beneficial to persons suffering from asthmatic diseases

There has been one case of varioloid, the patient, a seaman on an American man-of-war, having contracted the disease in Japan. The attack, however, ran a simple, uncomplicated course

Pulmonary phthisis is prevalent among the Japanese residents, especially among those coming from the southern provinces, as the climate is usually severe in winter. The Chinese residents suffer from rheumatic affections, and it is very rare to see a man who has not at one time or another had a rheumatic attack. However, these attacks are seldom fatal.

The native town is in a deplorable condition. There is not the least attempt made at drainage, and diseases due to filth and insanitary surroundings are prevalent. The European Concession is being drained and improved from a sanitary point of view. The supply of drinking-water is especially unsatisfactory, there being only one or two wells in the Settlement which are fit to be used.

The diseases most frequently observed among the natives during the winter season were syphilis, malaria, diseases due to filth, conjunctivitis and skin affections. Conjunctivitis is universal, and is frequently neglected until sloughing of the cornea takes place—or, at least, the physician does not see the cases until they reach this stage. Ear affections are not infrequent. At least one-half of the patients who come to be treated for ear troubles have perforated tympanic membrane

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## DR E A ALDRIDGE'S REPORT ON THE HEALTH OF ICHANG

For the Half-year ended 30th September 1891

THE following abstract is from the meteorological observations taken at the Custom House, Ichang (latitude,  $30^{\circ} 14' 25''$  N , longitude,  $111^{\circ} 18' 34''$  E) —

METEOROLOGICAL TABLE, April to September 1891

MONTH.	THERMOMETER				BAROMETER		RAINFALL	
	Highest	Lowest	Average Highest	Average Lowest	Highest	Lowest	No of Days	Quantity
	<i>° F</i>	<i>° F</i>	<i>° F</i>	<i>° F</i>	<i>Inches</i>	<i>Inches</i>		<i>Inches</i>
April	92 0	42 5	72 5	52 6	30 32	29 56	10	5 12
May	104 5	43 0	88 6	62 1	30 15	29 49	6	3 30
June	102 0	62 0	92 9	71 8	29 77	29 43	5	3 39
July	106 0	67 0	95 9	76 3	29 70	29 36	14	5 91
August	101 5	69 0	92 3	73 9	29 88	29 63	16	10 88
September	102 0	61 0	93 3	69 3	30 11	29 70	2	0 38

As will be seen by looking at the above record, the readings of the thermometer were exceptionally high. The great heat began early in May and lasted well into September. The average temperature was about  $80^{\circ}$  F, a record of about  $30^{\circ}$  higher than that of the previous six months. The rainfall was low, it being for the six months 28 98 inches only, falling in 273 hours, making for the last 12 months a total of only 34 29 inches, which fell in 448 hours.

As regards the health of Ichang, the great heat and dryness brought about a tolerably healthy season, malarial fevers and dysentery being noticeably less prevalent, which was partly due, no doubt, to the fact that the absence of water prevented any rice crop in the low fields at the back of the city, while the streets and mud floorings of the houses were also less damp. The failure of the rice crop naturally caused an uneasy feeling among the peasantry.

The lot of a European stationed here has not been a happy one. The great heat, sleepless nights and, in some cases, severe illness, the feeling, for many weeks, of living, so to speak, at the mouth of a volcano, never knowing when the threatened day was to arrive, and, lastly, the riot of the 2nd September, have occasioned much suffering and mental anxiety.

Among Europeans the most serious maladies were one case of small-pox and three of typhoid fever, all making good recoveries. For this result, in my own case when suffering from

typhoid, I am indebted to the untiring attention of Dr PIRIE, of the Church of Scotland Mission. Two attacks of dysentery were treated in one who had had the same complaint in other ports.

In May there was a fever prevalent among the natives, causing some deaths, which seemed, from the character of the rash, head symptoms and duration of fever, greatly to resemble typhus fever. It was declared to be very contagious, but of that I am dubious. One case of the disease was seen, ending in recovery, and none of the other occupants of the mud hovel were attacked, nor did any of the neighbours suffer.

All notes of cases attended were unfortunately destroyed in the late riot.

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## DR JAMES H McCARTNEY'S MEDICAL REPORT ON CHUNGKING

CHUNGKING, commercially the most important city west of Hankow, is built on a stony elevation at the junction of the Min with the Yangtze. I do not think that there is another city in the Empire better situated as regards sanitary possibilities than Chungking. It occupies an elevation from 50 to 200 feet above the river level, and is traversed by numerous ravines which carry the water and a large part of the filth of the streets into the stream. The city has a population estimated at from 250,000 to 350,000, the larger part of which lives within the walls. The water supply is obtained entirely from the river. Nature seems to have favoured Chungking in this respect, by causing the main current to flow along the shore on both sides of the city, so that nowhere along either bank can still water be found. The graves at the back of the city are, for the most part, lower than the city levels, and no drainage from them approaches us.

There are few rice fields within 2 or 3 miles with stagnant water. The people take life more easily than those farther down the river. The streets are much the same as in Hankow, although the buildings are, on the average, better. In many places the streets are very filthy, but no worse than in other Chinese cities. Living in Chungking is fairly good. The meat market is improving very rapidly since the Customs came here, good beef, mutton and fowl can be obtained at almost all times.

The climate is always damp, but especially so during the summer months, when, from the heat and moisture, the atmosphere is very oppressive. From November to February there are not many bright days, and the sun is seldom seen for an hour at a time. The location of both the in-door and out-door staff of the Customs is all that could be desired from a sanitary point of view. The members of the in-door staff occupy large and airy apartments in a native building on one of the highest points within the city. The out-door staff is quartered in well-ventilated apartments adjoining a temple on the hillside above the Customs office, more than 100 feet above low-water mark.

The health of the Customs staff, both in-door and out-door, has been excellent, indigestion and a few minor ailments alone demanding treatment.

The greater part of my observations have been taken from practice among natives while conducting the dispensary and hospital work of the American Methodist Episcopal Mission. A dispensary was opened on the 1st March 1891, and during the ensuing six months more than 2,000 patients presented themselves. A hospital with 100 beds has lately been established, which will supply a valuable field for observation.

The great majority of the patients seen suffer from respiratory and skin diseases. Among respiratory diseases, emphysema takes the lead, in both chronic and acute forms, old and young, males and females, being equally subject to it. Bronchitis, both acute and chronic, comes next.

I have met with many cases of phthisis in various stages, for which tonics with creosote in mixture and inhalation appeared to be the most suitable treatment. Pneumonia is not common, I have seen but one case in nine months.

The most frequent skin diseases, here as elsewhere in China, are itch and the various forms of eczema

*Tinea circinata*, seborrhoea and lupus are very frequently seen Treatment of lupus by the sharp spoon has proved successful in many instances

I have seen, but one case of leprosy, and that happened to come to my notice while on a journey about 100 miles from Chungking I am told that there is a village not many miles away where there are a large number of lepers

Although I have heard that diphtheria and small-pox are the most prevalent contagious diseases, I have not seen any cases of either Typhoid fever is not known—due, no doubt, to the good water supply and the drainage The only case of typhus that I have seen or heard of was that of a missionary, who came to Chungking from down the river

The different forms of malaria are common There is a type which the natives call *han-ping* (寒病), resembling pernicious intermittent, presenting all its varieties, having the same duration, and yielding to the same treatment This fever has been the cause of a large mortality among Chinese in and around the city since January 1891 Measles are common, among children during the spring and autumn

I have met with one case of hydrophobia —

The patient was a woman of middle age, who had been bitten by a rabid dog about 30 days previous The wound had healed, but the blue scar presented an inflamed appearance She had been in spasms for nearly two days, and as I had no place in which to confine her, I did not undertake any treatment

Venereal diseases, both in males and females, are frequently encountered, although every means of deception is adopted by the sufferers

The diseases of women treated have been endometritis, amenorrhoea, menorrhagia and metrorrhagia, the women submitting very reluctantly to examination

I have met with one case of ovarian tumour and one case of carcinoma of the cervix

Four cases of labour among native women were attended —

1° A lady passing through the city, who had been in labour for several days On reaching the house I found her in a very weak condition from loss of blood, the head of the child was already born To deliver was but the work of a moment, as the child had been dead several days After attending to the mother I left, promising to return if my services were needed Two weeks later I was called, when I found the rectum prolapsed through the vagina and the walls necrosed I clipped off the necrosed tissue and dressed antiseptically, and attended to the woman for a week, when she died from exhaustion, three or four large bed-sores having formed

2° A young married lady, 16 years old Had been in labour for several days, had passed no urine for 48 hours I drew off the urine, and found the head presenting at the superior strait I delivered the woman by forceps of a dead child, but heard no more about the case

3° Multipara Found the woman faint from loss of blood, brought about by the midwives attempting to crush the head of the child Before I could do anything the woman died undelivered

4° Primipara, in labour 24 hours On making an examination, found the left shoulder presenting Applied forceps and delivered a dead child The mother did well

The people show a surprising readiness to submit to surgical treatment, so that I have performed over 250 major and minor operations

*Resection of the Upper Jaw*—Epithelioma of a year's standing, in a woman The case did well at first, the parts all healing by first intention, with the exception of one spot, which would not heal This place was cauterised with chloride of zinc, but after a month it was evident that the growth was recurring I advised a second removal, but the friends would not consent The case passed out of my hands and I heard no more of it

After this there were two resections of the lower jaw in men, both for epithelioma In one case the growth involved the inside of the cheek, which made removal difficult

In two cases, one in a man and the other in a woman, nature was attempting resection of the lower jaw In each a fistulous opening communicated with the outside, through which pieces of bone were from time to time discharged After aiding nature by the removal of the dead bone, the fistulæ soon healed

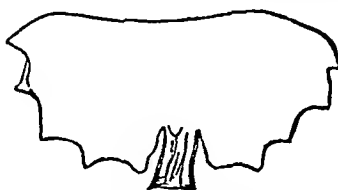
Out of three excisions of the knee, I was able to obtain the subsequent history of two In one of these there will be considerable motion

A few amputations of fingers and toes, as well as excisions of non-malignant tumours, have to be added to the record

In one case enterotomy was done, but was followed by death —

A female, 4 months old, with the following history The umbilicus would not heal, and in order to make it do so a native doctor resorted to plasters and, finally, to the knife, but during his operation he cut too deep, and let out the intestines This so frightened him that he did not wait to see the extent of the injury, but forthwith left the city I was called eight hours after the accident, and found 4 or 5 feet of the intestines out on the abdomen and covered with a dirty blue rag The bowels were greatly swollen, inflamed, and distended with gas, and the child was unconscious There was a longitudinal cut in the gut, 3 or 4 inches above the vermiform appendix, evidently made by the knife Under chloroform, the bowels were stitched with catgut (continuous suture), cleansed with warm antiseptic solution, and returned to the abdominal cavity, which was closed carefully The child died three hours later

Mr L, aged 35, gave the following history A few years ago he had a silver plate with one tooth attached made at Shanghai Two months previous to my seeing him he had swallowed the plate, in some manner not clearly stated Soon after, he presented himself at one of the dispensaries in the city and gave the history of the case, but after the physician had tried different means of determining whether the plate was in the throat or not, he decided that it was not, and told the patient so Two months passed and the pain still continued, with difficult swallowing and hoarseness At this juncture he came to my notice I passed a small bristle probang, which met with considerable resistance 3 or 4 inches below the base of the tongue After entering the stomach I opened the probang and began to pull At the same point an object was encountered, which required considerable force to move After many efforts the plate was detached and drawn out Below are its outline and dimensions in Chinese inches —



$1\frac{3}{10}$  inch long and  $\frac{8}{10}$  inch wide

After it was extracted very little bleeding took place I ordered mucilaginous drinks and told the patient to call again, but he never came.



A multitude of cases with carbuncles in all stages have presented themselves

The treatment was the injection of pure carbolic acid—10, 15 or 25 minims,—or crucial incision

The following meteorological observations were taken by Messrs STRONG and STOCKWELL, of the Chinese Customs service —

METEOROLOGICAL TABLE, January to September 1891

MONTH	ATTACHED THERMOMETER.		BAROMETER		THERMOMETER							
					Dry Bulb		Wet Bulb		Maximum		Minimum	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
	°	°	<i>Inches</i>	<i>Inches</i>	°	°	°	°	°	°	°	°
January	64	43	29 08	28 68	58	42	54	41	54	43	58	40
February	74	38	29 36	28 60	74	36	61	34	74	36	64	34
March	80	52	29 18	28 68	76	48	67	47	76	49	60	47
April	96	57	29 36	28 62	94	54	75	52	94	54	81	51
May	96	64	29 18	28 70	95	60	81	61	95	60	88	60
June	94	72	29 10	28 68	91	70	83	67	91	70	82	64
July	96	74	28 96	28 60	94	73	87	71	94	73	90	73
August	96	74	29 04	28 74	95	72	86	69	95	72	85	71
September	96	70	29 20	28 86	93	66	79	65	93	66	85	60

The rise of the river during July maximum, 65 feet, minimum, 32 feet August maximum, 43 feet, minimum, 28 feet September maximum, 46 feet, minimum, 25 feet

## DR A SHARP DEANE'S REPORT ON THE HEALTH OF PAKHOI

For the Half-year ended 30th September 1891

THE health of the foreign residents and native population for the period under review has been exceptionally good

As regards the foreign residents, with the exception of a few cases of herpes and boils—common affections here during the latter half of the hot season,—slight attacks of diarrhoea, and sore throats, no cases of illness have occurred

A resident missionary was invalided home suffering from remittent fever, with hepatic complications, contracted while on duty in Kwangsi

The birth of a male child took place on the 30th September

With regard to the native population, from what I could learn in the immediate neighbourhood of Pakhoi and at Lien-chou and other outlying towns, it appears that the health of this district has been better than during the corresponding period last year and far above the average for some years past

On the 11th July the decennial procession and general festival, on a large scale, was celebrated, as a thanksgiving for the comparative immunity that this district has enjoyed from plague, pestilence and all deadly diseases for the last 10 years, and also as a precautionary measure against their appearance here within the next decade. The ceremonies extended over a period of six days and cost about \$7,000

Diarrhoea and cholera, which usually prevail from July to September, were this year almost absent, and, in consequence, we were relieved from the depressing influence of funerals, with their concomitant bagpipe-like music, and the discordant inspirations emitted by mourning women, who think it necessary to produce the most fiendish sounds of which the human voice is capable during inspiration—a form of crying, I think, peculiar to this nation

Measles was epidemic during April. The cases were mild and ended favourably

Bubonic plague was rumoured to be in and in the vicinity of Pakhoi during April, owing to three persons having died suddenly in a house close to the town and other cases of sudden death having taken place in this neighbourhood. There was not, however, the least foundation for such a report. The three people that died in the house were found dead by their neighbours, and the probability is they had eaten food containing poison the night previous to the occurrence, as they seemed to be in good health the day before

From May to the end of September the temperature was higher than usual. The wind was variable, south-easterly and south-westerly winds, which are damp and productive of much

lassitude, did not blow so continuously as during the previous two years, northerly winds being frequently experienced At no time were we left without rain for more than a fortnight Heavy thunder-showers fell at short intervals all through the hot weather, which washed out the town regularly and drove the fermenting filth into the sea The rainfall for the six months ended 30th September reached a total of 53.34 inches, being 0.52 inches less than in 1890 and 7.02 inches less than in 1889 during the corresponding periods In 1889 diarrhoea and cholera were very prevalent, mainly owing to the irregularity of the rainfall during the first half of the hot season In the following meteorological table the temperature has been taken according to the rules laid down by the Hongkong Observatory —

METEOROLOGICAL TABLE, April to September 1891 (Latitude,  $21^{\circ} 29'$  N.,  
longitude,  $109^{\circ} 6'$  E)

MONTH	THERMOMETER			Rainfall	MONTH	THERMOMETER			Rainfall
	Highest	Lowest	Mean			Highest	Lowest	Mean	
	$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	<i>Inches</i>		$^{\circ} F$	$^{\circ} F$	$^{\circ} F$	<i>Inches</i>
April	90.0	51.0	70.0	1.10	July	95.0	73.0	85.0	3.83
May	99.8	63.0	76.6	5.73	August	97.0	73.0	83.0	26.08
June	95.0	74.0	84.7	10.58	September	95.0	73.0	83.0	6.02

## DR J H LOWRY'S REPORT ON THE HEALTH OF WENCHOW

For the Half-year ended 30th September 1891

### FOREIGN POPULATION, WENCHOW AND DISTRICT

Male adults	12
Female adults	6
Male children	2
Female children	2
	—
TOTAL	22
	==

The general health of foreigners resident at this port was only fairly good during the past six months. Every member of the Customs staff has been under treatment. The new out-door staff quarters, on Conquest Island, will, it is hoped, prove a benefit. So far, both members of the staff who live in them have suffered from malarial fever, but it is possible that the poison entered their systems during the time they lived in the former unhealthy quarters. Time will show whether the new buildings are more healthy.

The season was exceedingly wet, rain having fallen almost continuously from April to September. A glance at the meteorological table shows how large the rainfall has been.

One birth and one death occurred during the period under review.

The death was due to acute dysentery, the subject being a missionary lady brought in from an outlying district. Her case was a severe one, and she died on the second day after arrival.

On 8th September another missionary lady met with a severe accident, she fell from the city wall to the street below, a distance of from 20 to 30 feet, and received a compound fracture of the arm.

During July, when H B M S *Redpole* was stationed here, the sailors suffered much from diarrhoea and fever, they seldom went ashore, yet they had fever of a malarial type. The ship was lying in mid-river. The diarrhoea was lessened by Surgeon BRADLEY putting a veto on frunt being brought on board.

There was said to be a great deal of sickness in August and September among the native community in the city, no cases, however, came under my notice. But from what I heard, the sickness and increased mortality was due either to cholera or choleraic diarrhoea, probably the latter. I am unable to obtain any reliable details as to the mortality, so it is useless to speculate. It is not surprising that there is sickness in the city, for a privy atmosphere pervades the place. Privies and latrines are numerous in every street, and, I understand, are very profitable mercantile speculations. The city has changed a good deal since

Dr W W MYERS wrote on the "Sanitary Condition of Wenchow" \* No doubt the increased population has much to do with the change The streets are no cleaner than I have observed in other Chinese cities and are very unsavoury, and, as I have already said, a privy atmosphere pervades the place, and must be deleterious to the public health The pleasant sea breezes which Dr MYERS speaks of do not seem now to reach us, and the poor "cathedral city," as he calls it, suffers in consequence

The diseases observed and treated during the past six months have been —

Remittent fever	Dysentery
Intermittent fever	Bronchial catarrh
Congestion of liver and biliary derangement	Bubo, result of strain
Diarrhœa	Herpes round folds of mouth
Eczema	Hæmorrhoids
Neuralgia	Compound fracture of arm
Cardiac palpitation	Incised wound of hand
Anal catarrh	Vermin
Hæmipia	Cancer of womb
Nerve prostration and debility	Varnish or lacquer poisoning

Two cases of varnish-poisoning came under my notice They reminded me much of erysipelas Recovery was slow, and treatment seemed useless, as I believe other observers have found it

I append an abstract from the Customs meteorological observations taken at this port (latitude,  $28^{\circ} 1' 30''$  N, longitude,  $120^{\circ} 38' 28'' 50'''$  E)

METEOROLOGICAL TABLE, April to September 1891

MONTH	Highest Reading of Barometer	Highest Day Reading of Thermometer	RAINFALL		REMARKS
			No of Days	Quantity	
	<i>Inches</i>	<i>° F</i>		<i>Inches</i>	
April	30.400	79	18	6.61	Several severe thunderstorms occurred, but the port has not been visited by any typhoons
May	30.346	90	19	7.40	
June	30.056	89	16	7.77	
July	30.026	90	17	9.56	
August	30.550	93	16	15.33	
September	30.450	94	12	8.91	

NOTE—"An 'inch of rain' means a gallon of water spread over a surface of nearly 2 square feet, or 3,630 cubic feet = 100 tons upon an acre"—*Whitaker's Almanack*, 1891, p 53

\* Customs Medical Reports, xi

## DR ROBERT H COX'S REPORT ON THE HEALTH OF WUHU

For the Two and a Half Years ended 30th September 1891

THE general health of the foreign community (now numbering 55 persons) has been satisfactory during this period

There have been three births and two deaths—one death from heart disease and the other from infantile diarrhoea. A non-resident also died from cholera.

Malarial diseases were by far the most common, diseases of the intestinal and respiratory systems coming next in sequence.

An epidemic of influenza reached this port in March 1890, when about 20 per cent of the community were attacked. It made a second visit just six months later, resulting in about half as many victims. Two cases were accompanied by orbital neuralgia and one was followed by severe bronchitis, the others, for the most part, had mild attacks. Cases occurred later among the natives, and the malady remained with them till late in the summer.

Small-pox attacked three residents in the beginning of 1891. In each case the infection appeared to have come from the Chinese, as the patients dwelt wide apart and had no direct communication with one another. All three cases were of a light nature, but the condition of one (she being three months pregnant) gave rise to grave fears, which were happily not realised. All made good recoveries, with little pitting.

Whooping-cough, also from a Chinese source, attacked three children of a family in February 1891. There was no further spread.

Cholera made its appearance here in September 1890, in the person of a Chinese fireman on one of the river steamers, on the voyage from Shanghai. As an example of the risk run by the community at a place where no accommodation for infectious diseases exists, the following account may not be out of place here —

I found the patient, on arrival, in the stage of collapse, and as there was no hospital for the reception of infectious diseases, recommended that he should be placed in a native boat moored in the stream, and gave directions for the disinfecting of the steamer. This was done, but as a storm was brewing, the men in charge of the patient took the boat to the shore for shelter. On this being discovered, the agent had the boat brought under the lee of his hulk, but in the morning it was absent, and, on a search being made, the patient was discovered in a comatose state among the Chinese passengers on

board a steamer bound for Shanghai. He was again removed to the boat anchored in the stream, where he died about noon. The body was placed in a coffin and deposited on some waste ground at the back of the town, till December, when it was allowed to be forwarded to Shanghai for burial. Though the Consul, Commissioner and the agent of the steamer endeavoured to carry out the isolation of the patient, and the Taot'ai had sent some soldiers to guard the boat, yet the risk of infection on two occasions—when at the shore at night and among the passengers in the early morning—was very great.

To avoid such risk in future, I would suggest that ports on the river unprovided with a fever hospital should have a large covered cargo-boat, properly fitted, for the reception of such cases, which could be moored in the stream at a distance from the town.

A second death from cholera occurred at this port in August 1891.

W. C., aged 50, a pilot on board a steamer loading rice here, had diarrhoea for two months, previous to which he had enjoyed excellent health. The ship had left Shanghai (where there were several cases of the disease) 48 hours before the malady declared itself, the patient navigating the ship and feeling in his usual health. The day before the attack he had eaten a hearty tiffin, including some peaches. Next morning diarrhoea and vomiting set in, which alarmed the officers of the ship, and a signal for medical aid was made, which promptly brought the two surgeons of the English and French men-of-war to his assistance.

On my arrival at noon, just after their departure, I found the patient with severe cramps in the calves of his legs, causing him to cry out, his face, hands and feet were cold, bloodless and wrinkled, his eyes were sunken and his voice hollow and weak, in fact, he was in the algide stage. During my visit he had two watery, colourless motions, and had vomited a similar fluid. The chlorodyne and brandy already prescribed were continued, the former in 40-drop doses every hour, and of the latter a teaspoonful in water every 10 minutes. Hot-water bottles were applied and the calves of his legs ordered to be rubbed during the cramps. Precipitans were then taken to prevent the spread of infection.

I called again at 4 P.M., with the English naval surgeon, when we found that the interval had been passed with much less distress—cramps, diarrhoea and vomiting having left him for nearly two hours. His breathing, however, was very shallow and quick (about 50 to the minute), and his extremities still presented the same appearance, notwithstanding the hot-water bottles kept constantly renewed. Before we left the vomiting returned, leaving him extremely weak. His pulse could just be felt at the wrist. Brandy was directed to be given in increased doses and the chlorodyne stopped.

Shortly before 6 o'clock I was called to see him again, only to find him dead. He had passed away quietly, while being supported by an attendant. The after-death appearances differed little from his former condition. The body showed considerable wasting, and the muscular contractions were very marked, so much so that at first sight I thought he was still alive. As the quarters occupied by the patient were easily isolated from the rest of the ship, they having been thoroughly disinfected and secured, the vessel was allowed to proceed on her voyage. No further cases occurred on board.

A case of abscess of the liver which came under observation is perhaps worthy of detail.

A. B., aged 37, had been seven years in China. Health was good during that time, though he had contracted fever at Tamsui in 1886. When seen he complained of feeling unwell, with pain in the epigastrium. Had a muddy complexion, with yellow-tinged conjunctivæ. On examination, a place was found very tender to the touch in the region of the gall bladder, with marked swelling. After treatment with mercurial and saline purgatives and hot local applications, the tenderness diminished and fluctuation became apparent. A daily rise in the temperature to 102° towards evening was noted. He had also

a rigor, when the temperature rose to  $104^{\circ}$ . After 10 days there was a slight improvement, and he was sent to the hills near Kiukiang for a week, where he gained some strength and appetite.

On his return the swelling and fluctuation were not so evident, but his health became worse, appetite and weight decreased, with much trouble from night sweats. The motions were pale, which he attributed to an almost milk diet. He was then sent to Shanghai for operation, but on his way down was attacked with "dianhoæ" (caused by rupture of the abscess into the bowel), which continued after his admission into hospital and was accompanied by a reduction in size of the swelling. After a tardy convalescence he was discharged cured, 10 weeks from admission, and has enjoyed excellent health since, now over 12 months.

Among the Chinese, ague and skin and venereal diseases are the most common. In the winter of 1890-91 a small-pox epidemic of unusual severity was present in this neighbourhood, when upwards of 2,000 children under 12 years of age were said to have died from the disease.

Many cases of opium-poisoning have been treated. The females in every case recovered, owing, probably, to their taking a smaller quantity, and perhaps regretting the act as soon as performed, obtaining aid before the complete absorption of the drug. Success with male patients has not been nearly so great, the summons to attend often dating several hours after the swallowing of the poison, and on two occasions death occurred before my arrival. The stomach-pump, emetics, strong hot coffee, hypodermic injection of atropine, forced exercise and artificial respiration were the remedies employed.

Several obstetrical operations were performed, including nine craniotomies, in only one of which the mother did not recover. This result is remarkable, considering the surroundings of the patients and the fact that foreign aid is seldom sought till the native midwives have abandoned hope and the patient, leaving her often in a very low condition indeed.

The following may be taken as an example of the rest —

A puerperia, aged 24, living on board a junk, had been nine days in labour. She was in a very exhausted state, almost pulseless. Urine had not been voided for three days. Examination showed the labia œdematous, and a red, serous fluid exuding from the vagina. The head was fixed in the bium of the pelvis, with the vertex presenting. After the administration of brandy and egg mixture, and the bladder had been emptied by catheter, BARNES' forceps were introduced with considerable difficulty, and traction maintained at intervals for nearly an hour, with the result that the head was moved somewhat, but the smallness of the pelvic outlet and the unhealthy condition of the soft parts rendered extraction by this means impossible. A perforator was therefore passed between the blades of the forceps and a crucial incision made, and the brain matter broken up. Traction was again tried with the forceps, and though a large quantity of brain matter escaped through the incision, from the pressure of the forceps and pelvic walls, yet the head remained fixed. The forceps were then withdrawn and a cranioclast introduced, grasping some of the skull and scalp, when, after some delay, the delivery of the body of a large female child, much decomposed, was effected. A putrid fluid mixed with meconium followed the birth. Ergot was given, and the placenta removed with the hand in the uterus, which was then washed out with a warm solution of permanganate of potash, and a binder applied.

The perinæum was lacerated, but no sutures were inserted, owing to the œdematous condition of the parts. The permanganate injections were continued for a week, and the patient recovered without a bad symptom.



In the above case I was led to continue the forceps traction longer than necessary, partly from the wish expressed by the patient that I should not mutilate the child, though it had been dead for days, and from the fact that I had moved the head somewhat by that means. No anæsthetic was administered, owing to the extreme weakness of the patient, but brandy and egg mixture was given frequently by a female attendant from mouth to mouth. The smallness of the room added much to the difficulties of the operation, it being the lower stein compartment of a junk, about 10 feet by 6 feet and only  $4\frac{1}{2}$  feet high, with beams and ropes running across, rendering most movements cramped and standing up impossible.

I consider the favourable results in these cases largely due to the position assumed by native women after labour, viz, with the head and shoulders well raised, so that the body is at an angle of about  $45^\circ$  with the horizon, thus allowing thorough drainage. After excessive postpartum hæmorrhage this position, of course, could not be recommended.

The following case, from its rarity, is worthy of record —

A Chinese boy, aged 13, was admitted to the Wuhu General Hospital with a tumour, the size of a large orange, situated below and posterior to the right mastoid process. The skin and scalp covering it were stretched, but of natural appearance, and the swelling, which had been increasing in size for several years, was soft and apparently movable. Sebaceous cyst was diagnosed. A vertical incision about 4 inches long was made through the integument, but on trying to enucleate, by dissecting the flap on one side, it was found that the tumour had not yet been reached, and the aponeurosis was divided with a similar result. An exploratory incision was then made, which was followed by a jet of dark blood. This was immediately arrested by the finger, and a hypodermic needle was then passed into the tumour, some distance off, when blood-stained serum came away. The sac was emptied of its contents, consisting of blood and bloody serum and clots, when the occipital bone under the superior curved line, apparently eroded, and the transverse processes of two cervical vertebrae could be felt at the bottom of the cavity. The sac quickly refilled, and was again emptied and compresses applied. The patient was put to bed and carefully watched. The following evening the bandage was removed, when very marked pulsation was present in the swelling (which had increased considerably in size), easily checked by pressure on the common carotid. This was therefore tied, and pulsation ceased. The contents of the sac suppurated, and the patient left hospital in six weeks cured.

I think that this was, without doubt, a case of aneurism of the occipital, the occurrence of which in one so young, and in the absence of a history of injury, is remarkable.

A compound dislocation of the ankle without fracture of either bone occurred in the person of a Chinese male, aged 19.

While removing a signboard, he fell from a stool about 18 inches high, the right foot doubling upwards on the uneven pavement. The dislocation was easily reduced by traction on the foot, with the leg flexed on the thigh, but the re-covering of the external malleolus, which projected through a rent in the skin quite 2 inches above its tip, was with some difficulty accomplished, with the aid of a bone elevator, without incision. The limb was placed on a DUPUYTREN'S splint, along its inner surface, and an irrigating apparatus applied. The wound healed by granulation in a fortnight, and three weeks later the patient was able to walk without support. Nine months after the accident he came to return thanks, and declared that the wounded ankle was as strong as the other.

The following illustrates the danger of entrusting loaded firearms to the care of unskilled persons —

A Cantonese, aged 40, went pheasant-shooting, accompanied by a coolie, who carried his gun for him, loaded and cocked. The sportsman was in front, his attendant being about 10 feet behind, with the loaded gun in one hand, while with the other he was carrying some of his master's clothes. As he was rearranging his burdens, he appears to have caught the gun by the triggers, which was at once followed by a double discharge, and his master dropped. Assistance was procured and he was carried home. I was then sent for, and found the patient in a very excited state, and heard his own recital of the particulars of the accident. Two circular wounds, each about 6 inches in diameter, were situated, the one between and overlapping the shoulder blades, and the other lower down to the left, corresponding to the interval between the eighth and twelfth ribs. Blood and blood-stained serum were oozing from the perforations in the integument. The patient's body was luckily clad in three garments, the middle one padded with cotton wool, so that most of the non pellets carried with them a tuft of cotton, thus preventing their deep penetration. Many shots were removed, ranging in size from No 8 to No 1. He was taken into hospital by Dr STUART, who removed what remained, and he was discharged cured two months later.

A peculiar disease of an epidemic nature is said to be constantly present during the hot weather, *yang-mao-ch'eng* (楊茂成) is the common name for it. It begins with fever and diarrhoea, during which the Chinese doctor is called in, and, from the character of the pulse, diagnoses the disease and proceeds to apply the remedy. This usually consists of wheaten flour mixed with hot samshu, which is spread over any part of the patient's body the physician may select. It is removed after some time and examined, when some small white hairs may be seen in its substance. I was fortunate enough on one occasion to see a similar treatment applied.

A boy, aged about 10 years, evidently dying from tubercular meningitis, was lying comatose in bed, while an old woman (whose appearance would have cost her at least a ducking in Scotland a short time ago) was leaning over him and rubbing his abdomen with a handful of rush-pith steeped in samshu. After five minutes' friction this was handed to an assistant, when, to the joy of the parents, some of the characteristic hairs were found in it. I then examined some of the rush-pith stewing in samshu ready for use, but could not discover any hairs till the samshu was squeezed out and the spirit partly evaporated, when they became evident.

From this it will be seen that the remedy gives the name to the disease.

It is very common to see maggots being extracted from the eyes of credulous patients in the streets of the native city. The operator sits opposite his patient and inserts the square end of a chopstick between the lids of the affected eye, and rotates it so that the part next the eye moves in an upward direction, when in a few minutes a maggot appears on its upper surface. The patient pays for each as it is extracted, and the supply is regulated by the length of the patient's purse. Each oculist uses his own particular maggot, but sesamum seeds, soaked in water and cleaned, are the ones in general use. The amount of ophthalmia propagated by this means can only be imagined.

The Wuhu General Hospital, under the auspices of the American Methodist Mission (situated on I-chi-shan, a hill on the river bank, about 1½ miles below Wuhu), was opened in 1889, in charge of Dr STUART of that mission.

For the following extract from the Customs meteorological observations I am indebted to  
Mr Acting Harbour Master KINDBLAD —

METEOROLOGICAL TABLE, April 1889 to September 1891.

MONTH.	THERMOMETER		BAROMETER		RAINFALL
	Maximum	Minimum	Maximum	Minimum	
<b>1889</b>	°	°	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
April	86	41	30 26	29 74	3 67
May	90	52	30 28	29 74	3 72
June	94	65	30 00	29 62	11 15
July	99	71	29 98	29 70	3 60
August	98	67	30 14	29 78	1 32
September	92	54	30 29	29 82	8 05
October	80	46	30 26	29 76	8 35
November	68	33	30 43	29 74	2 27
December	58	23	30 46	29 94	0 05
<b>1890</b>					
January	58	26	30 42	29 80	1 28
February	67	30	30 44	29 52	1 94
March	70	31	30 40	29 70	5 17
April	88	44	30 17	29 48	5 62
May	93	47	30 07	29 60	3 73
June	94	62	29 80	29 50	6 71
July	99	72	29 77	29 38	4 83
August	97	67	29 78	29 58	3 73
September	89	61	30 05	29 62	0 10
October	83	46	30 28	29 84	0 06
November	75	35	30 40	29 90	4 34
December	66	24	30 36	29 70	1 48
<b>1891</b>					
January	52	24	30 35	29 92	0 36
February	62	19	30 53	29 74	2 37
March	79	34	30 34	29 68	0 97
April	85	42	30 22	29 60	4 13
May *					
June	95	67	29 76	29 46	3 42
July	98	69	29 72	29 44	8 00
August	97	70	29 93	29 56	5 86
September	92	65	30 05	29 62	3 52

\* Observations interrupted during not

## ABDOMINAL HYSTERECTOMY IN JAPAN

By WALLACE TAYLOR, M D

THIS article is confined chiefly to the technique of the operation, and is not designed to discuss the advisability of operating or the question of electricity in uterine myomata. It is sufficient to say that the operation is confined to myoma and cancer of the uterus too large to permit of vaginal hysterectomy.

Abdominal hysterectomy has occupied a prominent place in the discussions of gynaecological surgeons for the last few years. Many points which five years ago were unsettled and in regard to which there was much discussion have now, through the increased experience of many operators, become well defined, and surgeons are generally agreed as to what should be done and how to proceed. Some minor points are not yet settled and probably will never be, each operator having his own method of operating. But sufficient has been established to justify a brief review of the subject and ascertain the consensus of surgeons in regard to it.

The old question of whether the pedicle should be treated intra-peritoneally or extra-peritoneally has been decided in favour of the extra-peritoneal method. The intra-peritoneal method, in which the pedicle was dropped back into the abdominal cavity, was attended by too great a mortality to be retained as a justifiable procedure. Even the method of cupping the pedicle and bringing the flaps together by means of buried sutures, and finally covering all with the peritoneum, could not redeem it. It was too time-consuming and attended by too high a mortality. A retrospective view of the technique shows its deficiency. The shrinking of muscular tissues loosened ligatures, to be followed by hæmorrhage, and for the necrosis and suppurative of tissues there was no adequate outlet.

The method of enucleation in suitable cases, as practised by MARTIN of Berlin, and others, with closure of the peritoneal flap and drainage through the vagina, has also been given up for like reasons.

The extra-peritoneal method has also undergone modification in the meantime. The old method of surrounding the lower part of the uterus, including the tubes and ovaries, with two turns of rubber tubing held by a tourniquet, so as to check hæmorrhage while the upper part of the uterus and tumour are amputated, leaving a pedicle as thick as a man's arm or a child's thigh to slough away, has become a thing of the past.

The approved technique of the present time is to ligate the broad ligament outside of the tubes and ovaries with interlocked sutures till the lower part of the uterus is reached, then dissect down peritoneal flaps (anterior and posterior) till the cervix is reached, secure this small pedicle with a wire constrictor and *serre-nœud*, stitch the peritoneal flaps to the lower angle of the abdominal incision, suspend the pedicle by transfixing pins on the abdomen and close the incision.

The Fallopian tubes in fibroma are apt to be cystic, and hence should be removed with the uterus. But if the tubes are normal, and especially if the patient is young, it is well to ligate and incise near the uterus and allow the tubes and ovaries to remain. The psychical result is claimed by some authors to be better.

Dr J PRICE, of Philadelphia, says the operator who constricts a pedicle as thick as a man's arm does not know how to make a pedicle. You can strip down the peritoneum as the old farmer does his barn-door plants until you reach the circumference of the internal os, and thus the pedicle can always be reduced to the size of a man's thumb. While this is true of the great majority of cases, yet a case is occasionally met with where the tumour has so developed as to obliterate the cervix, and one or both lips of the os may be found flush with the vault of the vagina. In such a case complete extirpation of the uterus is the proper procedure.

The results of thus treating the pedicle extra-peritoneally are good—very much better than by any intra-peritoneal method. PRICE reports 6 per cent of deaths in his first hundred operations, and states that, excluding malignant cases, the mortality should not be over 2 or 3 per cent. Other operators report favourable results, if not quite so good as PRICE'S. So the operation is brought within the sphere of legitimate surgery.

Objections are brought against this method that it disturbs the normal relation of adjacent organs, making traction on the rectum and compressing the bladder. These objections, however, appear to be theoretical rather than practical, for the parts soon adjust themselves to their new relations and their functions are not materially disturbed. To obviate these objections, KELLEY, of Baltimore, drops the pedicle below the level of the abdominal wall, after sewing the reflected peritoneum to the edge of the incision, and thus suspends it within its peritoneal involucrium from pins across the abdomen. BYFORD, of Chicago, makes an incision into the vagina and turns the raw end of the pedicle into this incision, leaving it to slough off within the vagina. These devices, however, have not been generally accepted and have remained chiefly with those who originated them.

Total extirpation of the uterus without leaving a stump, and closing up the abdominal incision, is now practised by many surgeons with encouraging results. MARTIN, adapting FREUND'S method of extirpating the cancerous uterus to fibromata uteri, now performs complete extirpation. Dr KRUG, of New York, reports favourably of his work in this line, and states that the technique he uses is the outgrowth of his operations of vaginal hysterectomy, and is original with him. He ligates the broad ligament from above downward, using in general three ligatures on each side—one for the tubes and ovaries, a second one for the broad ligament, and a third for the uterine arteries, separates the bladder from the uterus, makes an incision into the vagina, anterior and posterior to the cervix, and then joins these incisions by lateral ones, which, if the uterine arteries have been well ligated, is done without hæmorrhage. The ends of the ligatures are left long and brought out through the vaginal opening, when a gentle pull will invert the stump of the broad ligament sufficiently to keep it away from the intestines. The pelvis is packed with strips of iodoform gauze, with the ends protruding into the vagina to facilitate removal, and the abdominal incision is closed.

In cases of cancerous uterus, total extirpation, with complete removal of the cervix, is the ideal operation, and this operation meets the requirements. Objections are brought against

it that it breaks the vaginal arch and thus weakens the support that otherwise would be given, and that it removes more than is absolutely called for (the cervix), except in cases of malignant disease, and hence that it is unnecessarily tedious and time-consuming Dr PRICE also brings in the objection (against the operation of complete extirpation and in favour of the extra-peritoneal method) that it unduly exposes the ureters to the risk of ligation.

The tendency in surgery is towards conservatism and simplifying the technique, so as to secure rapid work CHROBAK has made a step in this direction by his modified technique, which he calls the retro-peritoneal method This consists in making anterior and posterior peritoneal flaps, excision of the cervix above the vaginal junction, dilating and cauterising the cervical canal and then passing an iodoform wick through it into the vagina, and finally bringing the peritoneal flaps together above the cervical stump and upper extremity of the gauze drain, thus completely closing up the peritoneal cavity and leaving the raw surfaces underneath to granulate and heal He reports 17 operations in nine months by this method without a death

Dr BAER, of Philadelphia, practises a modification of CHROBAK's method He ligates the broad ligament outside the tube and ovary with one ligature down to the cervix, places another ligature (if necessary) down along the side of the cervix, applies pedicle forceps next the tumour or uterus and severs the broad ligament at each step He then makes anterior and posterior flaps, commencing an inch or so above the peritoneal reflexion of the bladder in front and somewhat lower behind, and ligates the uterine arteries within these peritoneal flaps outside of but close to the cervix, avoiding the cervix on one hand and the ureters on the other The cervix is drawn out by traction on the tumour and amputated well down by a sort of cupped incision, the stump seized with volsella forceps and trimmed until the supra-vaginal portion is removed The cervical stump is then dropped back "without a single ligature or suture in its tissue" The cervical canal is not treated The elasticity of the vagina withdraws the stump out of sight within the peritoneal flaps, the upper edges of these flaps are turned in so as to bring their peritoneal surfaces together and are left without suturing, and the abdominal incision closed The temporary ligature is not used.

The advantages claimed for this procedure are that it is safe from hæmorrhage and sloughing, and leaves the cervix in its natural anatomical position The objection brought against it is that the raw surfaces of the peritoneal flaps may suppurate and thus infect the peritoneal cavity BAER reports nine consecutive successful cases TRENDLENBURG's position is used

It has become fashionable to quote POZZI now But we turn to POZZI in vain for any new light on abdominal hysterectomy

My experience with this operation is limited, being confined to five cases at the Choshun Hospital, Osaka The results are, however, encouraging, as I have had four consecutive successful cases, and the fifth—a malignant case—a failure from an accident at the close of the operation

CASE I — *Uterine Myoma, Abdominal Hysterectomy, Extra-peritoneal Method* — Miss J, æt 43 Puberty at 17, married at 23, has never been pregnant, menses still continue Duration of tumour,

four years Operation performed on account of continued hæmorrhage and pain that failed to be relieved by treatment

*Operation, 17th May 1892* —The abdominal incision extended from just below the umbilicus to near the pubes The tumour and uterus were turned out with Tait's screws The broad ligament was clamped outside the ovaries and tubes with Wells's large catch forceps, another forceps placed next the uterus to prevent distal hæmorrhage, and the broad ligament excised so as to remove the tubes and ovaries with the tumour Two sets of forceps were used on the left side and one set on the right side, the bleeding points on the right side being caught with small catch forceps The boundary of the bladder was outlined by a sound passed into it, and the peritoneum incised across from side to side about  $1\frac{1}{2}$  inch above and dissected down till the cervix was reached, by means of the closed points of curved scissors, snipping a band of fascia here and there The posterior peritoneal flap was dissected off in the same way The peritoneum on the posterior surface is much more closely adherent to the uterus and cervix than on the anterior, and must be dissected off with the point of a scalpel, or, what is better, using the cutting point of a blunt pair of curved scissors, and it is well to strip down the external muscular layer with the peritoneum

An attempt was now made to secure the cervix by means of a constricting wire and *serre-nœud*, but the Delta-metal wire had crystallised, and every time it was bent over the catch it broke, so it had to be abandoned, and the cervix was transfixed and ligated with a double ligature and the tumour cut away The cervical canal was curetted and cauterised The broad ligaments were now secured by interlocked ligatures down to the peritoneal flaps and the forceps removed as the ligatures were drawn tight The peritoneal flaps were stitched to the skin at the lower corner of the abdominal incision, a drainage tube inserted and the abdominal incision closed The pedicle was suspended by means of transfixing pins passed through it at right angles above the ligatures and resting on the abdominal wall Aristol was packed in around the raw surfaces between the pedicle and the peritoneal flaps, and a mixture of one part of iodoform and five parts of boracic acid heaped up to cover all completely Temporary elastic constrictor was not used

The tumour weighed  $1\frac{3}{4}$  lb, and was a spongy, elastic myoma It was intramural, situated in the right side and fundus of the uterus, and was surrounded within and without by uterine tissue from  $\frac{1}{8}$  to  $\frac{1}{4}$  inch thick There were several small myomatous nodules besides the main tumour

The recovery of the patient was uneventful The drainage tube was removed within 24 hours, the bowels moved by saline enemata on the third day The pedicle was dressed every two or three days, changing the Aristol as it became moistened The pedicle shrivelled and came away on the seventh day after the operation without odour or suppuration Highest temperature  $38^{\circ}$  F, and pulse 120, for a short time on the third day

I was absent from the hospital for a fortnight and left the patient in the care of the interne When I returned, a month after the operation, there was a small sinus extending from the site of the drainage tube to the depression occupied by the pedicle, just underneath the skin This was cut out, curetted and packed with iodoform gauze, and the patient given permission to walk about She left the hospital a few days later with the incision well healed

The Delta-metal wire having served me so badly, I at once sent off for a new supply When it came to hand it was tough and flexible, but a few months after, when I wanted to use it, I tested it again and it had so crystallised that when I attempted to bend it, it snapped into three or four pieces and was utterly unreliable I was under the necessity of taking some copper wire of the proper thickness and rendering it flexible by heat This is always reliable and answers the purpose well

In the meantime Dr BAER's and Dr POLK's articles came out, and I resolved to adopt some of their plans in my next operation

CASE II—*Uterine Myoma, Abdominal Hysterectomy, Retro peritoneal Method*—Mrs J, æt 26  
 Puberty at 15, married at 20, has never been pregnant Duration of tumour, two years since first  
 noticed, growing rapidly of late Operation on account of profuse menstruation and pain, unrelieved by  
 treatment

The vagina was prepared for operation by shaving the external parts, scrubbing the vagina with  
 soap and mop and the external parts with brush All was thoroughly disinfected with 1 1,000 solution  
 of bichloride of mercury and the vagina packed with gauze wrung out of a solution of the same strength,  
 the evening before and again the morning of operation

Operation, 10th January 1893—After the patient was fully under the anæsthetic, the tumour,  
 which was wedged into the pelvis, was dislodged and pushed up into the abdomen One of the ovaries was  
 incorporated with the tumour, and hence oophorectomy was out of the question and hysterectomy was  
 at once decided upon The tumour was turned out with Tait's screws A ligature was placed outside  
 of the ovary, tube and its fimbriated extremity, down to the uterus on the left side, tied and clamped next  
 the uterus Then another ligature down the side of the uterus was tied The right side was treated  
 in the same way Then the limits of the bladder were outlined, and the anterior peritoneal flap begun  
 an inch or so above it and dissected down to the cervix The posterior peritoneal flap was made in  
 the same way The dissection of the anterior flap was easy and rapid The peritoneum was firmly  
 adherent to the posterior surface and the outer muscular coat was stripped down with it A ligature  
 was now placed within the flaps on each side, coming well down beside the cervix, and the anterior and  
 posterior flaps joined by incising the tissues included in the ligatures close to the uterus and cervix  
 Ligatures were then placed on each side of the cervix, well down, and the tumour cut away The cervical  
 pedicle was trimmed, the cervical canal dilated, curetted and cauterised, and the four strands of the  
 two ligatures on each side of the cervix passed through into the vagina The ligatures in the broad  
 ligament and those within the peritoneal flaps were cut short Then taking a chromatised catgut suture  
 and a short curved needle, commencing on the left side, the peritoneal edges of the broad ligament stump  
 were whipped in and sewn with a running stitch till the peritoneal flaps were reached The edges of  
 these flaps were turned in and a continued Lembert stitch used till the stump of the broad ligament on the  
 right was reached, when it was treated as the left side had been There was thus a continuous suture from  
 side to side across the pelvic floor and no raw surface presenting Traction on the ligatures within the  
 vagina drew this deep into the pelvis and the abdominal incision was closed

It will be seen that some points from POLK, CHROBAK and BAER were incorporated into the  
 technique of this operation A ligature was placed within the folds of the peritoneal flaps, securing  
 the vessels at the side of the uterus and cervix, after BAER Instead of CHROBAK's drain, the ends of  
 the cervical ligatures were turned through the cervical canal after POLK, and the peritoneal flaps closed  
 after CHROBAK

The tumour, uterus, ovaries, tubes and fimbriated extremities were removed *en masse* The tumour  
 was a solid fibroid, occupying the fundus and surrounded by uterine tissue as a calyx encloses a flower bud,  
 and weighed 1½ lb The cervix was amputated  $\frac{1}{2}$  inch below the inner os

The patient had a rapid and uneventful recovery The bowels were moved the third day The  
 cervical ligatures came away on the seventh day, and the patient was up and walking about the hospital on  
 the twenty-first day after the operation It was an easy matter to dilate the short cervix and wash out with  
 a glass tube, which was done every day The discharge was slight, and the subsequent care was so much  
 less and so much more acceptable to the patient than the fussy dressing in sight on the abdomen, and gave  
 such satisfaction generally that I shall use this method hereafter when possible

CASE III—*Uterine Myoma, Abdominal Hysterectomy, Retro-peritoneal Method*—Mrs K, æt 42  
 Married at 15, puberty at 17, had one child at 22 and one abortion six years ago She has had profuse  
 menstruation since abortion She noticed a tumour some two years ago in the lower part of the abdomen  
 Operation performed on account of profuse menstrual discharge, continuous sanguous discharge and pain



*Operation, 23rd March 1893*—The left ovary was spread out over the tumour and incorporated with it, and oophorectomy out of the question. The technique of the operation was essentially the same as in the previous case. The peritoneum was closely adherent to the uterus and cervix, both anteriorly and posteriorly, and was dissected off with the outer layer of the muscular tissue. The tumour weighed  $2\frac{1}{2}$  lb. It was submucous, occupying the left side and fundus, there was also a smaller fibroid anterior and subperitoneal, and a third submucous and within. The recovery of this patient was also uneventful. She was up on the twenty-second day after the operation.

*CASE IV—Uterine Myoma, Abdominal Hysterectomy, Retro-peritoneal Method*—Miss H, æt 50. Puberty occurred at 15, was married at 22, has had three children and one abortion. Operation performed for continuing profuse menstrual discharge and pain. There was an ill defined boggy mass on the right side.

*Operation, 13th April 1893*—The technique was essentially the same as in the previous two cases. The mass on the right proved to be a plexus of distended veins and two small fibroids, requiring an extra ligature to secure them. The ligatures were placed outside and they were removed with the tumour. In tying, one of the ligatures broke—a No 12. I use Nos 10, 12 and 14, braided "pure English silk." They are all tested before operation. I have never broken No 14 even under the stimulus of the operation. The tumour consisted of four soft fibroids, weighing 1 lb. One larger submucous, lateral and posterior, another subperitoneal and superior, and two smaller ones along the side of the uterus and underneath the right ovary and tube. The arteries were numerous and large on this side.

The recovery was interrupted by a little incident on the seventh day. The patient was taken suddenly with severe abdominal pain. The muscles became rigid, the temperature ran up to  $39^{\circ} 6$  and the pulse to 110. A hypodermic injection of morphine was given (I use morphine only in very exceptional cases in laparotomy), a cathartic enema was administered and ice was packed on the abdomen. The patient soon became easier, the temperature sank to  $38^{\circ}$ , the pulse to 95, and she was again comfortable as before. The whole disturbance did not cover more than three or four hours. No assignable cause was discovered. She was on her feet on the seventeenth day after the operation.

*CASE V—Carcinoma of Uterus, Abdominal Hysterectomy, Retro-peritoneal Method*—Mrs O, æt 56. Puberty occurred at 14, was married at 19, has never been pregnant, menopause at 37. Patient noticed a tumour in the lower abdomen some 18 months previous. It has gradually increased in size and extends up to the umbilicus. She has had some discharge. No bloody discharge till after my examination four days ago, at that time there was a little blood lost from manipulation. Operation advised on account of continued growth of tumour and increasing pain. Diagnosis probably a fibroid tumour, but might be a cancer, final diagnosis reserved till operation.

*Operation, 2nd May 1893*—When the abdomen was opened the tumour was seen to be symmetrical, pear shaped, extending above the umbilicus, the peritoneal covering slightly oedematous and of a pale pink hue, and was at once pronounced cancerous. The tumour was so soft that Tait's screws would not hold, not even when grasped short and used as a lever. I was under the necessity of enlarging the incision upward, inserting my hand beneath the tumour, turning it up edgewise and thus delivering it. The tubes on each side were cystic and as large as sausages, the one on the right side 4 inches and that on the left side 6 inches long. The technique after this was essentially the same as before described. The ligatures were placed outside the cystic tubes, so the tumour, cystic tubes and ovaries were all removed *en masse*.

The bladder was lifted by the tumour some 3 inches above the pubes. Its border was outlined by a sound, and a crescent-shaped incision made in the peritoneum about  $1\frac{1}{2}$  inch above it. The separation of the peritoneal flaps was readily done. The tumour bulged out low down on the left side. After the posterior peritoneal flap was stripped down and as the cervical ligature was being inserted, it burst open on the left side, low down, and the *débris* and the cancerous juice from the interior escaped into the pelvic cavity. The ligatures were rapidly tied, the tumour cut away and the pelvis thoroughly sponged.

In suturing the peritoneal edges of the broad ligament stump one of the ligatures was seen to have partially loosened. Its loop had been taken too long and it did not securely hold. It was replaced and the abdomen closed.

The tumour weighed  $3\frac{1}{2}$  lb and was so soft and friable that it would not bear its own weight when suspended by the hook of the steelyard, and had to be suspended in a cloth to be weighed.

The patient did well for two days, when symptoms of peritonitis (septic?) began to manifest themselves, and she gradually lost ground and died. The tissues were not sound and healthy, they had lost their tone and recuperative power, but still the *débris* and cancerous juice spilling into the pelvic cavity were most probably the cause of the peritonitis.

While this paper is being prepared an article by Dr LANPHEAR, of Kansas City, appears in the *Annals of Surgery*, in which he claims that his method of operating possesses some special advantages. The special points of technique that he lays stress upon are (1) turning the tumour on its edge, clamping the broad ligament next the uterus, setting the ligatures, and then cutting between them, first on one side and then on the other, through the abdominal incision, with the tumour and uterus *in situ*, and (2) then delivering the tumour thus partially freed from its attachments, and after he has made the anterior and posterior peritoneal flaps, he inserts his finger into the vagina, and (3) upon his finger as a guide he makes an incision into the vagina anterior and posterior to the cervix, then passes a pair of broad ligament forceps and clamps the uterine vessels on each side as in vaginal hysterectomy, cuts away the uterus and closes the peritoneal flaps over the forceps, which are removed after 24 or 36 hours. He claims that by this method the time consumed is much reduced. He seems to me to minimise some of the points of difficulty in the operation and over-extend some of those of his own device. The operator who first clamps the broad ligament and then sets his ligatures and ties will occasionally find them loosen and hæmorrhage result. He must take a narrow bite with his ligature or leave the tissues free to be firmly compressed as the ligatures are tightened.

I have made inquiry, but have not been able to ascertain that the operation of abdominal hysterectomy has been performed in Japan elsewhere than in the Choshun Hospital.

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## THE INFLUENZA EPIDEMICS IN FOOCHOW

By T B ADAM, MD, CM

ATTENTION was first called to the existence of influenza in Foochow in March 1890 by an outbreak in the schools of the American Methodist Mission. A large number of the pupils and one of the foreign teachers were attacked. The latter I attended. A sharp attack of fever, attended by frontal headache, was followed by great prostration, and for fully a month thereafter the patient was troubled with nervous headaches. The girls' school is situated in a separate compound from that of the boys', and about  $\frac{1}{4}$  mile distant. Both schools are in the midst of the foreign Settlement. Early in April the English Mission girls' school, also in the Settlement, was invaded, and two-thirds of the pupils and one of the lady teachers were sick with influenza. In the first week of May I was called to attend a lady of the American Board Mission, living within the native city, 3 miles distant from the Settlement. She presented typical symptoms of the neurotic type of influenza. Her illness was speedily followed by that of her child, husband and amah. The American Mission station at Ponasang, half way between the native city and Settlement, was next visited by the epidemic, and a few days later an outbreak occurred in the English Mission college and boys' school, situated close to the Settlement. Outside of the missions, five foreigners suffered from influenza in May and one in June.

In all these cases the onset of the disease was sudden, closely simulating a sharp attack of ague. An introductory rigor or feeling of chilliness was succeeded by a fever of one to three days' duration, followed by prostration, from which recovery was slow. No sore throat was complained of, and bronchial catarrh only occurred in two of all the cases that came under my notice. Treatment consisted of a dose of calomel followed by a few doses of quinine. All made good recoveries.

Nothing more was heard of influenza until November, when a resident who had been on a visit to Shanghai, where the disease was again prevalent, returned to Foochow incompletely convalescent from an attack and suffering from severe bronchial catarrh. He made a slow but good recovery. No further cases came under notice until January 1891.

A brief sketch of the sequence of cases in the January epidemic will, I think, afford conclusive proof of the spread of influenza by actual contact.

January 5th—I was called to attend A, and found him suffering from a sharp attack of influenza. 6th—A's mess companion, B, sickened. 7th—A and B's domestic attendants down with influenza. 8th—C, a friend who had called to see A and B the previous day, reports himself sick. 9th—I fell ill. It must be noted that no other cases of influenza occurred in the community outside of those I detail. C communicated the disease to three friends who visited him. My illness was followed within a few days

by that of my wife, two children, amah and house-boy. A playmate of my son's, who frequented the house, also fell sick, his illness being shortly followed by that of his mother. Only three other foreigners suffered from influenza in January, two of the cases being reasonably traceable to the group of cases detailed above.

In February the American Methodist Mission compound was revisited. The pupils were home for the Chinese New Year holidays. Eight of the foreign staff were attacked, one after the other, by influenza, including the mission doctor and nurse. A missionary in perfect health, on the eve of starting off for a country trip, "looked in for a minute" to see a brother missionary sick in bed with influenza. A few days later news came to hand that he was stricken down with influenza in a country station. An English Mission lady, living in the American compound, had a mild attack. A lady friend of her mission visited her one afternoon and as a consequence was sick in bed next day with influenza. Her friend and nurse sickened on the following day.

Influenza as experienced in January 1891 was a much more serious disease than in the spring-summer epidemic of 1890. A's case may be briefly detailed, as characteristic.

January 5th—Felt sensation of chilliness, aching all over body, and complained of severe frontal headache and sore throat. Temperature in evening,  $102^{\circ}$ .

6th—Temperature  $102^{\circ} 5$ . Headache very severe. Tonsils are much inflamed.

7th—Temperature  $103^{\circ}$ . Headache and sore throat slightly relieved.

8th—Temperature normal. Headache gone. Feels excessively weak. Throat less painful. Has cough with feeling of soreness in chest.

9th—No fever. Suffers from bronchial catarrh. Feels "good for nothing." Remained for a few days after this in a warm room, nursing his cough and slowly picking up strength, then imprudently went out one afternoon and had to return to bed for a week with a sharp attack of bronchitis. Strength returned very slowly and fully a month elapsed before convalescence was complete.

In my own case the attack was ushered in with a severe rigor, and a feeling of chilliness continued for about 12 hours.

Fever usually lasted from one to three days. In two cases it continued for a fortnight. Temperatures ranged from  $100^{\circ} 5$  to  $105^{\circ}$ .

Headache was present in all cases—an aching frontal headache, persisting as, a rule, until fever left. No special complaint was made of the eyes by any patient, and nothing was observed to support Dr. BEZLY THORNE'S theory of the conjunctiva being the point of invasion of the disease\*.

Nervous System—Prostration, well marked, was characteristic. For at least a week after fever left patients felt "good for nothing." In the case of a child of 4, partial paralysis of lower limbs occurred. On attempting to walk the little fellow repeatedly fell, and for two days he was exceedingly wroth with his legs for failing to carry him. Sleeplessness was a feature of many cases. Convulsions accompanied the fever in the case of a child of 2 years.

Bronchial Catarrh was an almost universal sequela—or, more correctly, feature—of the winter epidemic. In several cases the bronchitis was very severe and accompanied by profuse expectoration. Much relief was obtained from poulticing.

Sore Throat was a very general symptom, the inflammation varying from a mere redness of the fauces to severe tonsillitis. Experience seemed to prove that vigorous treatment of

\* *Lancet*, 4th January 1890.

the throat symptoms, with chlorate of potash gargles, lessened the severity of the subsequent bronchial catarrh

Nasal catarrh was generally, but not universally, present

Ear-ache was a sequela in four cases

In no case was any eruption observed on the skin

A break of warm summer-like weather occurred in February, and I noted that patients then sick with influenza got over their attacks with very slight catarrhal symptoms. It would appear from this observation, and the experience of the spring-summer epidemic of 1890, that in the state of nervous prostration following the fever the mucous membranes are rendered exceedingly prone to inflammation, and the presence of cold weather is the determining cause of the bronchial catarrh.

In the foregoing notes I have not dealt with influenza as affecting the natives of Foochow city and surrounding villages. From the report of missionaries it is evident that the epidemic spread throughout the province of Fuhkien. In the winter epidemic the mortality amongst the old and very young was great. I saw many severe cases, but they were all so complicated by the insufficient diet and miserable surroundings that other than fatal results could hardly have been looked for. A large mortality among pigs occurred during the course of the epidemic. Several of the foreigners' ponies suffered from symptoms sufficiently suspicious to raise the question whether they were not victims of influenza.

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## ON MR J T ROE'S THEORY THAT INFLUENZA IS ENDEMIC IN CHINA

By JAMES CANTLIE, M A, M B, F R C S

IN the continent of Asia reports of the prevalence of influenza have been made from Siberia, Thibet, Tonkin, Singapore, Penang, China, India and Japan, in the order given

In Hongkong we have not been without diversity of opinion as to the name. In fact, one or two medical men refuse to recognise the disease which has prevailed here as influenza. We have had a repetition of names such as one sees in the medical journals—"dengue fever," "fever with rheumatic pains," "fever with epidemic catarrh," and such like. This is one sure proof, if such were needed, that we have had influenza, as the presence of the disease has provoked similar contentions in all parts of the earth.

But a peculiar interest attaches to influenza in China. The Russians call it a Chinese disease, and, for aught we know to the contrary, they may be right. Whether they merely regard the present epidemic as arising there, or whether they regard the disease as endemic in China, I have not yet been able to ascertain. It may merely be that they called the disease Chinese in the same way as the people in Western Europe called it Russian influenza and the residents in Hongkong called the second visitation of the disease Shanghai influenza, and so on. The disease, in fact, is named, as many others are, from the last place it comes from, irrespective of the real origin.

But an attempt has been made to focus influenza upon China.

In a paper read before the Balloon Society influenza is regarded as peculiarly a Chinese disease. The statements are referred to by numerous London papers, and in the Hongkong *Daily Press* they are commented upon as follows —

MR JAMES THORNE ROE, C E, at a recent meeting of the Balloon Society, read a paper in which he contended that influenza is a Chinese marsh fever. The lecturer illustrated his theory by referring to the Yellow River, which is 2,400 miles in length, and which he contended was the real home and seat of the disease. Its inundations, he said, caused the deposit over an immense tract of country of the insanitary filth of populous cities and towns, and to this must be added the calamity of 1887, caused by the bursting of its embankment, burying in the mud entire villages with their "millions of inhabitants." "Would not," Mr ROE proceeds to inquire, "the effluvia and dust arising, often in the minutest particles, which exhale from putrefying animal or vegetable substances, be sufficient to infect distant lands, providing the air current and weather were favourable for conveying these poisonous vapours or the particles of pulverised mud charged with these germs of disease?" In support of this idea the lecturer quoted the eruption of Krakatoa volcano in August 1883, the cloud of dust from which is reported by the Committee of the Royal Society to have passed three times round the globe. From this fact the lecturer argued the connexion between the countries of the West with the marshy districts of China, the fever germs from which undoubtedly float in the air and may travel indefinitely. He thought, moreover, that these germs sometimes arrive in a dormant state, mild weather imparting to them life and energy, and they would probably thrive best in low or marshy districts and on the banks of rivers.

The writer goes on to say—

All this sounds plausible enough, but we should like to hear what the members of the medical profession practising here and in the Treaty ports have to say on the subject Does the so called influenza possess any great affinity to the fevers prevalent here and in China? If so, how is it that the disease has become epidemic in the Western world when here it is only sporadic?

It is the statements made by Mr ROE and the comments made by the local press which it behoves us to answer, and I propose to do so by attempting to excite discussion on the subject

On instituting an inquiry we have to decide—

I—In the opinion of medical men, has influenza visited China at all, and when?

The per-centage of opinion, judging from the belief entertained by civil, military and naval men in Hongkong—and we can take it as a specimen of the scientific belief in China,—is about 80 per cent “ayes,” 20 per cent “noes”

So it must be said when put to the vote, we have had influenza Further, the “noes” qualify their opinions by stating, “We have had fever with catarrh,” and the medical staff, whilst on the one hand rejecting the name influenza, dub it “epidemic catarrh” But epidemic catarrh is the synonym for influenza given in the nomenclature of disease of the College of Physicians These and such-like are the result of local hitches in professional opinion and relations which occur everywhere and cause an attempt at a difference in name when there is none in belief So that actually all medical men in China admit as a scientific fact we have had influenza

II—The next point to be settled is when did the epidemic appear in China?  
Did we have it in 1890?

Certainly, both on shore and afloat it was prevalent When the flagship of the Chinese squadron was lying in Hongkong Harbour in March 1890, 147 of the crew were suddenly seized with the disease Was influenza present in 1889? Yes, but sporadically Was it known in 1888? Here is the crux by which an important tale may hang In September and October 1888 a disease existed in Hongkong which puzzled the local practitioners It was called “fever with rheumatic pains,” “a variety of dengue,” “a variety of German measles” and so forth

I read a paper on the subject before the Medical Society, but no progress was made at the subsequent discussion as to a definite name The paper was laid aside, and in the month of June 1891—*viz*, three years after—I took it up again and read it through, and to my astonishment found an exact account of influenza as we now know it This is a most important paper, as it is the first written record of the modern epidemic of influenza

If there is any value in unprejudiced evidence it is to be found in such a record Here was a paper written during the epidemic of an unknown disease, stating clinical facts merely The facts were arranged and needed a name, but none was forthcoming until three years afterwards, when, from collateral evidence in other parts of the world, it was found to be influenza we were dealing with No one can gainsay the fact that we had influenza in Hongkong in 1888

### III—How did the epidemic travel?

In 1888 we had the disease in Hongkong. The next time we hear of it is in Russia, in the following year—1889,—and in 1889-90 in England. Then an intermission occurred, and again, in 1891, the disease appears in England, after 10 months' cessation. Noticing the dates carefully, we see that at least twice has the disease visited Britain—1889-90 and 1891. The dates in Hongkong and Britain have been—

Hongkong, 1888,  
Britain, 1889-90,

Hongkong, summer of 1890,  
Britain, spring of 1891,

the appearance of the disease in Hongkong preceding the appearance of the epidemic in Western Europe.

Moreover, the second outbreak in Hongkong came by way of Japan and Shanghai, so much so that many called it "Shanghai" influenza or "Japanese" influenza. Again, the disease appeared in Japan subsequent to its travel across America, and the Pacific steamers were held by the Japanese guilty of its introduction. Thus it appears to have left China in 1888, travelled across Siberia to Europe in 1889, reached America, and appeared in the Far East again in 1890. In 1891 it again attacked the Russians, and subsequently Western Europe. It thus appears that it travels from east to west and that it has gone twice round the world. That it has finished is not by any means certain. The dust from Krakatoa travelled thrice round the world from east to west, and if particles of dust can thus be carried round the earth, how much more conceivable is it that "fomites," the "microbes," the "influence," the "chemical condition of air," or whatever in our ignorance we choose to term it, may journey longer. That the method of travel in previous epidemics was such, we know. Nothing is more convincing than the account of a fleet of five men-of-war crossing the Atlantic, in the beginning of the present century, from the West Indies to England, when three-fifths of the crews were prostrated by influenza which was then prevalent in England, and, further, that a few days subsequent to the occurrence the disease appeared in America. So that from east to west seems to be the course hitherto pursued, and the present epidemic is no exception.

Dr PARSONS'S Report to the Local Government Board deals with many theories. He declares that the disease travelled from east to west, and concludes, therefore, that the wind has nothing to do with it, as it frequently blew in an opposite direction, and ascribes contamination to human intercourse. How did the ashes of Krakatoa encircle the earth thrice? Surely the winds do not blow in the same direction all the time? And if solid particles of dust can be thus made to travel, how much more easily might germs(?) do so. Dr PARSONS seems to have forgotten that the revolution of the earth is constant and in the direction mentioned, the course of the wind local and variable, and most diseases which spread by atmospheric contagion follow the course of the Krakatoa dust. The fine particles of dust may have attained a height where the lower air currents were impotent, and as they gradually deposited, the revolving earth was besprinkled with them in the sequence of its process of revolution.

### IV—Is influenza endemic in China?

We are now face to face with Mr ROE'S contention that influenza is endemic in China. Mr ROE states that influenza is a "marsh malarial fever." I believe that is one reason why



the medical profession in China has been so slow to diagnose the disease Malarial fevers are ever associated with aches and pains, and they run an erratic course of hours, days or weeks It is among the latter class that we have to search for influenza, but so close is the affinity between the symptoms we know of as peculiar to local fevers and influenza that almost our only means of recognition is by the catarrh Now, catarrh is met with in less than half the cases in Europe and is not a necessary accompaniment of the disease We must lay aside at once the belief, as Dr PARSONS says, that the epidemic which has just raged is merely an exaggerated form of bronchial catarrh or influenza cold But amidst the multiplicity of forms of fever which one is accustomed to see, I repeat it is difficult without the presence of catarrh to diagnose influenza as distinct from some vagaries of the local malarial fever one meets with But if catarrh and lung complications are not usual accompaniments in Britain, how much less are they likely to be in South China, where the climate lessens the risk of lung troubles to a great extent, compared with that of a colder climate

All this proves that not only has influenza been present, but, as few doctors of my acquaintance would acknowledge its presence *until catarrhal symptoms showed*, I believe I am right in my conclusion that not more than two-fifths of the cases of influenza were diagnosed by us The affinity between some forms of fever and influenza without catarrh is such that, not only now, but when influenza is not brought home to our minds by existing in an epidemic form elsewhere, many cases occur which it is impossible to classify or pronounce as different from influenza as we now know it

#### V—The Huang-ho or Yellow River mud theory

Mr ROE contends that the basin of the Yellow River is the birthplace of influenza, and from thence it travels as from a centre It would not be exceptional were such the behaviour of this disease Cholera, for instance, is endemic to certain districts in India, whence it occasionally spreads over the whole world Typhus fever, a disease known to be caused by overcrowding, has many times spread from overcrowded centres and become diffused far and wide in country districts So far, then, reasoning by analogy, there is nothing improbable in the idea of a region where the disease is endemic

Unfortunately, I have no experience of the diseases prevailing in or about the basin of the Yellow River, and if this article can but bring to their pens some of the medical men who have experience there, it will have done much towards elucidating the subject and giving Mr ROE the "yea" or "nay" But the writer must be wary in his record He must compare the form of "fever" met with in the neighbourhood and that experienced elsewhere either by himself or others He may, if experienced elsewhere, put down what he meets with in the Yellow River region as one of the many varieties of "malaria" The forms of local fevers met with are of endless variety Were it not so we should not hear such names as "Gibraltar fever," "Malta fever," "Cyprus fever," "Roman fever," "West Coast fever," "Hongkong fever," etc, all of which vary in type, but are classed now as arising from organic poisoning or from malaria "Fever" in South China are but seldom aguish in character A person coming, for instance, from Mauritius to Hongkong has "rigors with a cold period" with his first recurrence of fever, but less so than in Mauritius, with the later recurrences the cold period gets less

and less, until by the fourth attack the fever has become of the usual Hongkong type, with no rigors and a cold period slight or unnoticeable

Now, in the vast length of China fevers must vary according as they are met with in the tropical, subtropical or temperate zones, and to class them all as malaria shows how little is known about the genesis of fever. Hence I say the recorder of disease has to be careful that he is not dealing with a disease which is unlike that met with anywhere else. "Malta," "Roman" and "Cyprian" fevers behave differently, closely as they are allied geographically. How much more are differences to be expected in the area of China.

This is preliminary really to the statement I now make as to the appearance of influenza in Hongkong. On talking with a doctor of 25 years' experience in Hongkong and Macao concerning influenza, he said that it was "nothing new here," that he had many times seen the disease before—in fact, that he was not aware that a year passed without his having known cases. He was content to classify them as a "form of dengue." However, when the disease came to be classified as influenza, he was surprised at the new name, but readily styled it influenza to be in harmony with others, but not because it was of a different type to what prevailed before. At times during the last 25 years it has become epidemic, as in 1888 and 1890, but that it has been present in Hongkong and Macao in sporadic forms, and at times in prevalent forms, he is convinced.

My experience of five years fully corroborates every word as above stated. In 1887 fever to such an extent prevailed in Hongkong that the Government appointed a Commission to inquire into it. A different type prevailed in 1888, and in each successive year the type of fever has varied from its predecessor. I am not aware that such is the case elsewhere than in China. The "fever" of a place is generally well marked, and the treatment by the people a matter of daily life. But not so in South China. Fevers have no type here, they are polymorphous.

Certain it is we have many forms, certain also that we have malarial fever to deal with, and admitted it must be that we have occasionally prevalent, and sporadically always present, a disease which is allied to "dengue fever" but which resembles influenza as we now know it. Influenza is combatted by the usual malarial remedies, and it is fair therefore to assume that a malarial element may be present.

No disease is known to assume so many forms as influenza. A disease that can give rise, either primarily or secondarily, to fever, pains of an excruciating nature resembling dengue only, headaches at times considered as neuralgia, lumbago, rheumatic pains in limbs, skin eruptions, jaundice, diabetes, diarrhoea, peripheral neuritis, Bright's disease, pneumonia, paralysis of individual muscles, aphasia, spinal meningitis, cerebral lesions of many kinds, and numerous other affections is a type which cannot be neglected during any illness within the last three years.

The forms of malarial fevers in China are almost as varied and variable as are those of influenza, and amongst the number it behoves us to note whether Mr. Roe's contention, "that influenza is endemic in China," is correct or not. I have stated the argument fully, so that there may be no doubt of my meaning, and have done what I can to attract discussion by adopting Mr. Roe's views. No communication has been sent to the medical journals from China on the existence of influenza, except from Hongkong, and this makes one all the more interested in the matter. Every corner of the earth has reported the disease except China.

What does this mean—the non-existence of the disease? Not so, even the Chinese recognise its presence, and have specially devised medicines to cope with it. Is it that the disease is constantly present with us in some form, and complicates ordinary malarial fever? The latter would explain the tardiness of the foreign medical practitioners in China to admit the disease.

The position of the renunciants of influenza is as follows —Has there been influenza in China?—No. Has all the rest of the world had it?—Yes. How do you explain its absence from China? ———

The answer from Mr ROE's standpoint is that "you have it always with you and it complicates your diseases to such an extent that a slight increase in its prevalence does not strike one as exceptional as in other parts of the world, and merely goes by the name of 'fever,' without the qualifying word even of malaria."

Thus I have taken upon myself to invite discussion on this subject from the only source where Mr ROE's statement can be answered scientifically. The matter must be discussed with an unbiassed clinical mind. Neither the absence nor presence of "bronchial catarrh," nor a "rash," the most evanescent, unreliable and variable of all the accompaniments of influenza, is to determine the matter.

These warnings I would specially repeat, as such signs and symptoms are those readily seized upon by the superficial observer as the means of diagnosis. Finally, I have to record that the same disease I recorded in 1888, but could not name, is here in Hongkong now—September 1891, and should I venture to prophesy, I should say that influenza has not yet completed its travels, and that its presence here now will be followed by its appearance in more westerly countries.

Failing the fulfilment of the prophecy, it is a proof that we have but to observe and we shall find that the disease is endemic in China and that Mr ROE's theory is so far correct.

As I forward this paper influenza has again appeared in Moscow.

[The Berlin Hygienic Bureau has published the following facts relating to the influenza epidemic of 1889-90 —

Influenza in epidemic form was recognised in June 1889 in Turkestan and reached Eastern Russia (Kiahkta) in the middle of October. On the 28th October it broke out in Western Siberia and advanced eastward, reaching Japan in January and Hongkong in February 1890. Its course westward was more rapid. Moscow was attacked in November 1889, and St Petersburg a fortnight after Moscow. The capitals of Sweden, Denmark, Germany, Austria, France and England were reached by the end of November or beginning of December, while Buda-Pesth, Brussels and Madrid were not invaded before the middle of December. On the 19th December it reached New York, and showed itself at the end of the same month in Milan, Rome, Naples, Constantinople, Canada, Morocco and in several States of the American Union. By the middle of January 1890 influenza was raging at Tunis, in Algeria and in Egypt. A fortnight later it broke out in Central and South America. Eastern Africa was not attacked before the end of March, but Bombay was attacked by mid-February.]

## DR ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 30th September 1891

THE half-year just closed may be divided into two periods—one of unusual drought, the other of unusual humidity. The former would comprise the months from April to July, the latter, August and September. In April there were a few groups of a couple of days each during which showers fell, in May the total rainfall was  $1\frac{1}{2}$  inch, in June there was but one heavy downpour, the rainfall for the month being less than one-third of the average, in July there were but seven rainy days. On the other hand, more than double the average amount of rain fell in August, while September was marked by brief torments, which, though separated by perfectly dry intervals, brought the total amount registered to 10 inches.

The atmosphere was in almost constant disturbance. April and the first week of May were very stormy, with frequent growling of distant thunder. After a heavy dust-storm on the 5th May the weather was relatively calm round Shanghai itself, where we had but little share in the storms on the coast. The same may be said of June, in which month there was but one tempest. This burst over the Settlements on the 23rd, which was the hottest day of the month. The great triple typhoon of the 18th July will long be remembered. It had been preceded and was followed by violent storms on the coast, which prevailed up to the end of September, but although August was tempestuous, no great disturbance reached Shanghai except the typhoon of the 1st and 2nd September, which was accompanied by a remarkable, though temporary, fall of temperature. As regards heat, the summer months were by no means exhausting, the temperature having no doubt been kept down by the rapid circulation of great masses of air evidenced by the storms which prevailed all along the coasts of Japan and China. April, May and the first half of June were mild and equable, with an occasional hot day. The maximum for April was  $83^{\circ}$  F (11th), the minimum,  $39^{\circ}$  (8th). The mean for May was  $68^{\circ}$ , the difference between the maximum and minimum daily mean having been only  $19^{\circ}$ . The maximum registered in May was  $89^{\circ}$  (10th), the minimum,  $47^{\circ}$  (17th). The latter half of June was hot but variable, and this period was followed by a cool first week in July, so that summer, in the sense of persistent hot weather, did not begin until about the 10th July. The highest temperature registered in June was  $96^{\circ}$  (23rd), the lowest was  $60^{\circ}$  (4th). The maximum for July was  $97^{\circ}$  (24th), the minimum,  $69^{\circ}$  (4th). The first half of August was oppressive, but mild weather began on the 16th, and after that date the day temperature was moderate. The nights, however, continued hot until the middle of September, and this rendered the season much more exhausting than would be anticipated from a perusal of the temperature registers. The maximum recorded for August was  $96^{\circ}$  (12th), the minimum,  $70^{\circ}$  (22nd), the maximum for September was  $86^{\circ} 5$  (7th), the minimum,  $56^{\circ}$  (30th). In general terms, the summer months were cool, dry and windy.

## DEATHS of FOREIGNERS from 1st January to 30th September 1891

CAUSE OF DEATH	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	TOTAL
Small pox	1 1*	1*								3
Typhus fever		1*								1
Enteric fever		1†				1	1			3
Diphtheria	1†		1†			1†				3
Whooping cough								1†		1
Tuberculosis	1						1			2
Phthisis	3*				1*	1	1*			6
Cancer								1		1
Bright's disease				1	1*		1		1	4
Cholera								4 2* 4†	3 5*	18
Meningitis	1†			1†	1†		1†		3†	7
Apoplexy	1	1					1			3
Heart apoplexy							2			2
Convulsions	1†								1†	2
Epilepsy									1	1
Melancholia									1	1
Alcoholism				1						1
Heart disease				1						1
Laryngitis		1†								1
Bronchitis		1†								1
Pneumonia	2*		1*							3
Peritonitis		1†								1
Dyspepsia		1†								1
Diarrhoea	1			1			1†	1 1†	1	6
Dysentery						1*		1		2
Obstruction of bowels									1†	1
Hepatitis									1*	2
Abscess of liver					1			1		2
Pyonephritis						1		1		1
Albuminuria of pregnancy						1*				1
Puerperal fever							1			1
Umbilical hemorrhage	1†									1
General debility		1†								1
Asphyxia						1				1
Poisoning									1*	1
Gunshot wound		1								1
Suicide		1			1					2
Drowning					1*	1*	1†	1*		4
Not certified							1	1*	1*	3
TOTAL	14	11	2	5	6	8	12	19	20	97

\* Not resident adults (28)

† Infants (28)

Two adults died from enteric fever, but, judging by my own experience, I am of opinion that the disease was neither severe nor widespread. On the other hand, malarial fevers and vague disorders, yielding readily to quinine, were extremely prevalent. That ill-defined affection "influenza" was common enough, the diagnosis in my practice being usually made and insisted upon by the sufferers themselves. A cholera case occurred in a foreigner as early as May, and the last death among foreigners from this cause for the year was recorded in November. The disease raged among the Chinese, and, there can be no doubt, is now endemic in Shanghai. Only one death is attributed to dysentery, although that affection in a moderately severe form and ordinary diarrhoea were constantly under observation, especially in July, August and September. Three deaths were due to inflammatory conditions of the liver, of these, two occurred among residents. A few cases of varicella occurred among children. Pertussis was

epidemic among the Chinese from May to July at least, during which months I saw a very large number of cases in native children living in widely separated parts of the Settlements. Foreign children suffered here and there from the disease, but among them there was nothing resembling an epidemic. Bronchitis and catarrhal throat affections were common, in spite of the dryness of the season. Phthisis accounts for one death among residents. It is still true, as has often been noted in these Reports, that almost all cases of phthisis are imported. Many cases of chronic alcoholism, and of the acute form necessitating confinement, were treated in hospital and in private. One death only is attributed to alcoholism during the period under review, but it cannot be doubted that excess in drinking largely increases the "morbidity" of the place and thus, indirectly, its mortality.

A most distressing and, indeed, appalling, group of events occurred during the cholera season of this year, by which a lady and her three children perished within two days.

The family in question, consisting of husband, wife and three children, lived in a well-built, airy house in a good situation. The house was kept scrupulously clean, and all ordinary precautions as to boiling drinking water, cleansing vegetables, and so forth, were matters of daily routine frequently, if not regularly, supervised.

Up to noon on the 2nd September the entire family was apparently well. At 2 P.M. a child, aged 2, was suddenly seized with vomiting and griping, followed by clear, watery stools containing green lumps (these lumps proved to be pieces of Chinese beans with which his ayah had fed him during the forenoon), urgent thirst, cold surface covered with sweat, and collapse. The application of external heat, energetic friction and the administration of stimulants were kept up for 24 hours without any marked change in the condition. Then two convulsions, of short duration and unaccompanied by loss of consciousness, occurred. After these the surface became fairly warm, and the pulse, which from the beginning had been hardly perceptible, was noted as "100, soft and full." Next day vomiting had ceased, a little urine was evacuated for the first time, the stools (five in 24 hours) were large, watery, and still contained fragments of macerated beans. The surface had, however, again become cold, and no devices for restoring heat to it were of any avail. On the fourth day there was constant flow of serous fluid from the bowel, convulsive movements of limbs, teeth-grinding. Insensibility came on at 6 A.M., general convulsions four hours later, with death shortly after, 70 hours from the beginning of the illness.

On this day (5th September) the father was seized with a sharp attack of dysentery, which was treated by dieting and castor oil and laudanum, and lasted about a week. He was assiduous in his attendance on his family, but notwithstanding this, and in spite of the irritation of at least a certain portion of his intestinal tract, he did not at any time present any choleraic symptom. During the forenoon of the 6th September a second child, 1 year old, began to vomit and purge. Collapse came on rapidly, and he died in the evening. On the same day the third child, twin brother of the first, was in apparent health up to 4 P.M., when he returned from a tea party. All the other children at this party remained well. Immediately on getting home he vomited, and incessant serous purging set in at once. Three hours after the beginning of the attack he was pulseless, with cold, wet, cyanosed surface, excavated eyes, urgent thirst, extreme restlessness, hoarse cry and purring respiration. At 10 P.M. he became insensible, and died at 11 P.M. There were no convulsions.

While attending to this child, at 7 P.M. on the 6th September, the mother found herself suddenly drenched in perspiration, and violent purging set in at the same moment. She was seen a few minutes later, and was already cold. The diarrhoea was bilious up to midnight, when it became characteristically choleraic and involuntary. Vomiting was urgent up to 10.15 P.M. (3½ hours), when it stopped, and did not recur. There was a very brief and short attack of cramp in the calf muscles at 11 P.M. The skin all over the body was now livid, the pulse disappeared, and respiration, which had at first been comparatively little affected,

became shallow and rapid. Uncontrollable restlessness with apparent unconsciousness, broken occasionally by a short sudden cry, and a continuous flow of serous fluid from the bowel so that the bed was saturated, marked the last two hours of life. The patient died at 2 30 A.M. on the 7th September, 1911, 10½ hours from the commencement of the attack.

A case of Aphasia lately under treatment presents certain points of interest.

Three years ago a European male, aged 72, who had spent most of his life in China, and had always been remarkably healthy up to the age of 71, suddenly became aphasic. He had been in the habit of walking 5 or 6 miles daily until he was well past 70. Then he occasionally complained of seatier and of hæmorrhoids, but he continued his daily exercise with but little diminution. He was not gouty. He had lately had much business anxiety. A medical man who saw him for some trivial ailment six months before the attack to be described noted that his pulse was "very strong, hammering." He had suffered recently from bronchitis with profuse expectoration. He had always been temperate in eating and drinking, and although his appetite was excellent and he took abundant nourishment, he had for some years, solely in consequence of bad teeth, lived chiefly on milk and soups, puddings and fish. He was in the habit of reading a great deal, chiefly the newspapers, and he took considerable interest in current events, social, political and commercial.

1st day.—He was known to have been apparently in his usual health at 5 30 P.M. A friend, who saw him two hours later, found him speechless, but understanding spoken and written words, and able to reply intelligently by signs to spoken or written questions. Whether he could write was not then ascertained. There was no paralysis of the limbs. He walked upstairs to bed, and with some assistance undressed himself. He then ate some dinner without any difficulty in deglutition. Complete control of sphincters. His pulse was said to be very soft and feeble. I saw him at 10 P.M., when he was lying on his left side in bed, sleeping quietly and breathing regularly, but with a slight snore and occasional puffing of the lips. I did not disturb him, but ordered ½ ounce doses of hazelue every three hours.

2nd day.—Had slept well. Found patient walking about his room. The left corner of his mouth was drawn a little upwards and outwards. When a pencil was put into his right hand he let it drop, either because he had lost recollection of its use or because he had lost the finer sensibility of his fingers. He moved his right arm freely, but the grip of his right hand was weakened, still he could take up whatever he required. He did not appear to understand either speech, writing or signs, and his hearing was dull. He was evidently neither surprised nor distressed by his inability to speak. He masticated and swallowed well. This morning he made signs to his servant, by fumbling at his pyjamas, that he wanted to urinate. Temperature 98°. The urine was in every respect normal.

3rd day.—Passing urine involuntarily. Bladder empty. The dragging of the mouth was more marked and the hand weaker. A good deal of his food was now running over his lower lip. In the evening he for the first time smiled and nodded a salutation.

4th day.—For the first time showed distress, or rather annoyance, at his inability to speak. The mouth was hardly distorted. The right hand was stronger, he was able to grasp with considerable force, but he used his left hand by preference for arranging his clothes, etc. When asked to put out his tongue he attempted to comply, but did not succeed. He had passed urine once or twice voluntarily.

5th day.—One involuntary stool, but no involuntary micturition. Mouth perfectly straight. When asked to protrude his tongue he got the tip of it just between his teeth, but could not advance it further. There was no escape of food from corner of mouth. He had an excellent grip with the right hand, feeding himself with it. He obviously understood simple signs, but I could not get him to grasp the dynamometer.

6th day.—Lip movements perfect, but no attempt at speech made. When offered a newspaper, book, or paper and pencil he showed neither pleasure nor annoyance, but simply pushed them aside as though he had no idea of their use. Urination voluntary. He feeds himself with a spoon.

8th day —Began to try to speak Says "yes" and "no," but indistinctly Could not protrude tongue

10th day —Recollected the use of pencil and paper When a written question was placed before him he took the pencil as if to reply to it, made a scribble, and seemed satisfied that he had replied He did not attempt to reply by signs to simple written questions, which, in fact, he clearly did not understand

14th day —He understood simple spoken questions, such as "Have you had tiffin?" In answer to this he shook his head in decided negative But when, after feeling his pulse at the right wrist, I said "Give me your left hand now," he looked blankly round, and then made a sign with his right hand, conveying that he did not understand

17th day —Up to this day he had been quite amiable, but now there was a sudden change of temper He continued gentle and polite to his servants, but when visitors approached he made gestures to prevent them coming, and if they persisted he rose from his chair with a grunt of annoyance and went to another part of his room

Incontinence of feces, but not of urine, now set in and lasted for several months, when it disappeared Three months after his attack his general health was perfectly good, and he had grown very stout Got out a word occasionally, such as "yes," "no," "good-bye" (imperfectly), but could neither write nor understand writing Understood any simple spoken question and replied by appropriate signs All paralysis had completely disappeared

Two years later there was no change, except that he showed an extraordinary memory for faces seen before his illness, and for names

Thirty-two months after his attack, he being then 75, I saw the patient again When asked to come in to see me he presented himself with a bronzed, ruddy complexion, walking rapidly and firmly into the room He at once recognised me, and shook hands, giving me a grip which made my fingers tingle He understood the questions which I asked him—as to his appetite, sleep, liking of his surroundings, etc,—and answered without hesitation by appropriate gestures and by attempts at speech, which, however, did not get beyond "oh yes," "no" and "very well," the last indistinct After a while he rose from his chair, shook hands again, and left the room with gestures of farewell

He is still unable to speak or to write (aphasia and agraphia), he does not understand written words (word blindness), but he recognises any previously familiar object presented to him and correctly indicates its use, he also recognises the meaning of spoken names applied to objects, at least up to wide limits (absence of word deafness), he never makes any attempt at reading or looking at pictures Meanwhile his nutrition is perfect, he sleeps like an infant, takes, for a man of his age, an extraordinary amount of walking exercise, and has complete command over both bladder and bowel He never betrays the slightest surprise or distress at his condition

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CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31<sup>st</sup> MARCH 1886

**31<sup>st</sup> Issue.**

PUBLISHED BY ORDER OF  
**The Inspector General of Customs.**

SHANGHAI

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

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LONDON P. S. KING & SON, CANADA BUILDING KING STREET, WESTMINSTER, S.W.

1886

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## II.—SPECIAL SERIES.

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No. 1.—NATIVE OPIUM	... ..	Published	1864
„ 2.—MEDICAL REPORTS	31st Issue (First Issue, 1871) ..	„	1886
„ 3.—SILK	. . . . .	„	1881
„ 4.—OPIUM	. . . . .	„	1881.
„ 5.—NOTICES TO MARINERS	Fourth Issue (First Issue, 1883)...	„	1886
„ 6.—CHINESE MUSIC	. . . . .	„	1884.

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1886.

32<sup>nd</sup> Issue.

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„ 2—MEDICAL REPORTS 32nd Issue (First Issue, 1871)	„	1886
„ 3—SILK	„	1881.
„ 4—OPIUM	„	1881
5.—NOTICES TO MARINERS Fourth Issue (First Issue, 1883)	„	1886
—CHINESE MUSIC	„	1884

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1887

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## II—SPECIAL SERIES

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No 1—NATIVE OPIUM	Published	1864
„ 2—MEDICAL REPORTS 331d Issue (First Issue, 1871)	„	1887
„ 3—SILK	„	1881
„ 4—OPIUM	„	1881
„ 5—NOTICES TO MARINERS Fifth Issue (First Issue, 1883)	„	1887
„ 6—CHINESE MUSIC	„	1884
„ 7—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS		1887

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1890

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„ 2—MEDICAL REPORTS 34th Issue (First Issue, 1871)	„ 1890
„ 3.—SILK	„ 1881
„ 4—OPIUM	„ 1881
„ 5—NOTICES TO MARINERS Eighth Issue (First Issue, 1883)	„ 1890
„ 6.—CHINESE MUSIC	„ 1884
„ 7—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS	„ 1887
„ 8—MEDICINES, ETC , EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES	„ 1888
„ 9.—NATIVE OPIUM, 1887	„ 1888
„ 10—OPIUM CRUDE AND PREPARED	„ 1888
„ 11.—TEA, 1888	„ 1889
„ 12—SILK STATISTICS, 1879-88	„ 1889
„ 13—OPIUM HISTORICAL NOTE , OR THE POPPY IN CHINA	„ 1889
„ 14—OPIUM TRADE MARCH QUARTER, 1889	„ 1889

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35<sup>th</sup> Issue.

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## II.—SPECIAL SERIES

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No. 1.—NATIVE OPIUM	Published 1864
„ 2.—MEDICAL REPORTS 35th Issue (First Issue, 1871)	„ 1890
„ 3.—SILK	„ 1881
„ 4.—OPIUM	„ 1881
„ 5.—NOTICES TO MARINERS Eighth Issue (First Issue, 1883)	„ 1890
„ 6.—CHINESE MUSIC	„ 1884
„ 7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS	„ 1887
„ 8.—MEDICINES, ETC, EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES	„ 1888
„ 9.—NATIVE OPIUM, 1887	„ 1888
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„ 11.—TEA, 1888	„ 1889
„ 12.—SILK STATISTICS, 1879-88	„ 1889
„ 13.—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA	„ 1889
„ 14.—OPIUM TRADE MARCH QUARTER, 1889	„ 1889

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30<sup>TH</sup> SEPTEMBER 1888

36<sup>th</sup> Issue.

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## II—SPECIAL SERIES.

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No. 1.—NATIVE OPIUM	Published 1864
„ 2.—MEDICAL REPORTS 36th Issue (First Issue, 1871)	„ 1890
„ 3.—SILK . . .	„ 1881
„ 4.—OPIUM	„ 1881
„ 5.—NOTICES TO MARINERS Eighth Issue (First Issue, 1883)	„ 1890
„ 6.—CHINESE MUSIC	„ 1884
„ 7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS	„ 1887
„ 8.—MEDICINES, ETC, EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES	„ 1888
„ 9.—NATIVE OPIUM, 1887	„ 1888
„ 10.—OPIUM CRUDE AND PREPARED	„ 1888
„ 11.—TEA, 1888	„ 1889
„ 12.—SILK STATISTICS, 1879-88	„ 1889
„ 13.—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA	„ 1889
„ 14.—OPIUM TRADE MARCH QUARTER, 1889	„ 1889

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II.—SPECIAL SERIES: No. 2.

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MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31st MARCH 1889

**37th Issue.**

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„ 2.—MEDICAL REPORTS 37th Issue (First Issue, 1871) . . . . .	1891
„ 3.—SILK . . . . .	1881
„ 4.—OPIUM . . . . .	1881.
„ 5.—NOTICES TO MARINERS Ninth Issue (First Issue, 1883) . . . . .	1891.
„ 6.—CHINESE MUSIC . . . . .	1884
„ 7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS . . . . .	1887.
„ 8.—MEDICINES, ETC., EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES . . . . .	1888
„ 9.—NATIVE OPIUM, 1887 . . . . .	1888.
„ 10.—OPIUM CRUDE AND PREPARED . . . . .	1888
„ 11.—TEA, 1888 . . . . .	1889
„ 12.—SILK STATISTICS, 1879-88 . . . . .	1889
„ 13.—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA . . . . .	1889
„ 14.—OPIUM TRADE MARCH QUARTER, 1889 . . . . .	1889
„ 15.—WOOSUNG BAR DREDGING OPERATIONS. . . . .	1890
„ 16.—CHINESE JUTE . . . . .	1891.

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No 1.—NATIVE OPIUM	. .	Published 1864
„ 2—MEDICAL REPORTS 38th and 39th Issues (First Issue, 1871)		„ 1894
„ 3.—SILK	. .	„ 1881
„ 4.—OPIUM	. .	„ 1881
„ 5.—NOTICES TO MARINERS Twelfth Issue (First Issue, 1883)		„ 1894
„ 6.—CHINESE MUSIC		„ 1884
„ 7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS		„ 1887
„ 8.—MEDICINES, ETC, EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES		„ 1888
„ 9—NATIVE OPIUM, 1887		„ 1888
„ 10.—OPIUM CRUDE AND PREPARED . . . .		„ 1888
„ 11.—TEA, 1888 . . . .		„ 1889.
„ 12.—SILK STATISTICS, 1879-88		„ 1889
„ 13—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA		„ 1889
„ 14.—OPIUM TRADE MARCH QUARTER, 1889		„ 1889
„ 15—WOOSUNG BAR DREDGING OPERATIONS		„ 1890
„ 16.—CHINESE JUTE . . . .		„ 1891
„ 17.—ICHANG TO CHUNGKING, 1890 . . . .		„ 1892
„ 18—CHINESE LIFE-BOATS, ETC . . . .		„ 1893

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MEDICAL REPORTS,

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„ 2—MEDICAL REPORTS 40th Issue (First Issue, 1871)	„ 1894
„ 3.—SILK	„ 1881
„ 4—OPIUM	„ 1881
„ 5—NOTICES TO MARINERS Twelfth Issue (First Issue, 1883)	„ 1894
„ 6—CHINESE MUSIC	„ 1884
„ 7—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS	„ 1887
„ 8—MEDICINES, ETC, EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES	„ 1888
„ 9—NATIVE OPIUM, 1887	„ 1888
„ 10—OPIUM CRUDE AND PREPARED	„ 1888
„ 11.—TEA, 1888	„ 1889
„ 12—SILK STATISTICS, 1879-88	„ 1889
„ 13—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA	„ 1889
„ 14—OPIUM TRADE MARCH QUARTER, 1889	„ 1889
„ 15—WOOSUNG BAR DREDGING OPERATIONS	„ 1890
„ 16.—CHINESE JUTE	„ 1891.
„ 17.—ICHANG TO CHUNGKING, 1890	„ 1892
„ 18.—CHINESE LIFE-BOATS, ETC	„ 1893

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MEDICAL REPORTS,

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„ 2.—MEDICAL REPORTS 41st Issue (First Issue, 1871) . . . . .	„ 1894.
„ 3.—SILK . . . . .	„ 1881
„ 4.—OPIUM . . . . .	„ 1881.
„ 5.—NOTICES TO MARINERS Twelfth Issue (First Issue, 1883) . . . . .	„ 1894
„ 6.—CHINESE MUSIC . . . . .	„ 1884
„ 7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS . . . . .	„ 1887.
„ 8.—MEDICINES, ETC, EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES . . . . .	„ 1888
„ 9.—NATIVE OPIUM, 1887 . . . . .	„ 1888
„ 10.—OPIUM CRUDE AND PREPARED . . . . .	„ 1888
„ 11.—TEA, 1888 . . . . .	„ 1889.
„ 12.—SILK STATISTICS, 1879-88 . . . . .	„ 1889
„ 13.—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA .. . . .	„ 1889
„ 14.—OPIUM TRADE MARCH QUARTER, 1889 . . . . .	„ 1889.
„ 15.—WOOSUNG BAR DREDGING OPERATIONS . . . . .	„ 1890
„ 16.—CHINESE JUTE .. . . .	„ 1891
„ 17.—ICHANG TO CHUNGKING, 1890 . . . . .	„ 1892.
„ 18.—CHINESE LIFE-BOATS, ETC . . . . .	„ 1893

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„ <b>2.—MEDICAL REPORTS</b> 42nd Issue (First Issue, 1871)	„ 1894
„ <b>3.—SILK</b>	„ 1881
„ <b>4.—OPIUM</b>	„ 1881
„ <b>5.—NOTICES TO MARINERS</b> Twelfth Issue (First Issue, 1883)	„ 1894
„ <b>6.—CHINESE MUSIC</b>	„ 1884
„ <b>7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS</b>	„ 1887
„ <b>8.—MEDICINES, ETC, EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES</b>	„ 1888
„ <b>9.—NATIVE OPIUM, 1887</b>	„ 1888.
„ <b>10.—OPIUM CRUDE AND PREPARED</b>	„ 1888
„ <b>11.—TEA, 1888</b>	„ 1889
„ <b>12.—SILK STATISTICS, 1879-88</b>	„ 1889
„ <b>13.—OPIUM HISTORICAL NOTE, OR THE POPPY IN CHINA</b>	„ 1889
„ <b>14.—OPIUM TRADE MARCH QUARTER, 1889</b>	„ 1889
„ <b>15.—WOOSUNG BAR DREDGING OPERATIONS</b>	„ 1890
„ <b>16.—CHINESE JUTE</b>	„ 1891
„ <b>17.—ICHANG TO CHUNGKING, 1890</b>	„ 1892
„ <b>18.—CHINESE LIFE-BOATS, ETC</b>	„ 1893

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